



Regulations

ExxonMobil Chemical



Regulations

There are many, increasingly complex regulations to control the use of chemicals. This can undermine your business, and the products you choose can determine success. We address here the main regulations that are relevant to our products. When establishing compliance with any regulation for specific products or applications one should refer to the regulation in its latest version and understand one's responsibilities.

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GHS of classification and labeling





The globally harmonized system (GHS) of classification and labeling was started in 1992 and developed by the United Nations (UN). It is an internationally harmonized approach to classification and labeling that provides the foundation for national programs to ensure the safe use, transport and disposal of chemicals. GHS should be seen as a collection of building blocks that countries can select from for transposition in their own legislations provided that a minimum of key criteria are respected. For example, some countries may choose not to apply certain defined classes of classification.

The GHS document, also known as the Purple Book, provides guidance and a practical toolbox that includes:

- Definition and classification of chemicals by types of hazard – physical, health or environmental
- Harmonized hazard communication elements, including labels and safety data sheets.

GHS also provides recommendations on the transport of dangerous goods, or the [Orange Book](#), that include provisions for classification, packaging, labeling/placarding & marking, and preparation of transport documents. Certain countries have already adopted GHS while others are preparing to do so in the near future. The GHS implementation usually happens in 2 steps: first, the producers and a couple of years later, downstream users.

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Hazard classification »

The purpose of classification is to identify whether a product's physicochemical, toxicological and ecotoxicological properties may pose a hazard when handled or used.

Labeling »

Hazardous products must be clearly labeled in order to inform their users of the hazards.

Classification & labeling of our products »

For information about our products, please contact your ExxonMobil sales representative or distributor.

Timelines for GHS adoption »

See the list of the countries that have adopted and/or are considering implementing GHS.

Hazard classification

Many substances are potentially hazardous, including water, but not classified. This is because the hazard-exposure analysis concludes that the level of exposure to that substance

The purpose of hazard classification is to identify whether the intrinsic physicochemical characteristics of a product or its toxicological and ecotoxicological properties may represent a hazard (e.g., has a capacity to burn, explode, corrode, etc.) when handled or used.

Data on potential hazard is then considered with exposure, and this forms the basic approach to risk assessment. It is summarized in a simple formula: **hazard x exposure = risk**. The implication is that minimizing hazard or exposure minimizes risk.

The [Global Harmonized System of Classification and labelling](#) (GHS) distinguishes 3 categories: substances, mixtures and articles

The properties of substances are tested by prescribed methods and the results are evaluated against criteria limits. It is worth noting that many substances are potentially hazardous, including water, but not classified when they are not considered a risk to health in normal use conditions.

For mixtures, calculation rules have been developed under GHS based on the composition of the product and in relation to hazard categories. This provides an alternative to the testing of mixtures and allows for prediction and estimation of the hazard properties.

Examples of the classification categories in GHS are:

Health hazards:

- Acute toxicity
- Sub-chronic toxicity
- Reproductive and developmental toxicity
- Chronic toxicity
- Genotoxicity

Environmental hazards – aquatic:

- Acute aquatic toxicity
- Chronic aquatic toxicity
- Potential for actual bioaccumulation
- Degradation (biotic or abiotic) for organic chemicals

Physical hazards:

- Flammable

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Labeling

Hazardous products must be clearly labeled in order to inform their users (whether professionals or from the general public) of the hazard(s). For each classification, GHS has assigned different labeling elements:

- Safety pictograms
- Warning phrases
- [Hazard and Precautionary statements](#)

Specific requirements for the labeling of hazardous products in packages are typically included in the national legislation, such as:

- Language, size and coloring of labels
- Position on the packaging
- Details about supplier address
- Number of hazard and precautionary statements
- Danger warnings, etc

REACH includes packaging in its CLP (classification, labeling and packaging) regulation.

List of safety pictograms:

GHS01 - Danger - Unstable, Explosive	GHS02 - Danger or warning - Flammable	GHS03 - Danger or warning - Oxidising
GHS04 - Warning - Compressed gas	GHS05 - Danger or warning - Corrosive cat. 1	GHS06 - Danger - Toxic cat. 1-3
GHS07 - Warning - Toxic cat. 4 - Irritant cat. 2 or 3	GHS08 - Danger or warning - Systematic health hazards	GHS09 - Warning (for cat. 1) - Environment

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Hazard and Precautionary statements

H and P statements (GHS / CLP)

H200 – Unstable explosives.	H334 – May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H201 – Explosive; mass explosion hazard.	H335 – May cause respiratory irritation.
H202 – Explosive, severe projection hazard.	H336 – May cause drowsiness or dizziness.
H203 – Explosive; fire, blast or projection hazard.	H340 – May cause genetic defects exposure cause the hazard.
H204 – Fire or projection hazard.	H341 – Suspected of causing genetic defects .
H205 – May mass explode in fire.	H350 – May cause cancer .
H220 – Extremely flammable gas.	H351 – Suspected of causing cancer .
H221 – Flammable gas.	H360 – May damage fertility or the unborn child .
H222 – Extremely flammable aerosol.	H361 – Suspected of damaging fertility or the unborn child .
H223 – Flammable aerosol.	H362 – May cause harm to breast-fed children.
H224 – Extremely flammable liquid and vapour.	H370 – Causes damage to organs .
H225 – Highly flammable liquid and vapour.	H371 – May cause damage to organs .
H226 – Flammable liquid and vapour.	H372 – Causes damage to organs through prolonged or repeated exposure exposure cause the hazard.
H228 – Flammable solid.	H373 – May cause damage to organs through prolonged or repeated exposure exposure cause the hazard.
H240 – Heating may cause an explosion.	H400 – Very toxic to aquatic life.
H241 – Heating may cause a fire or explosion.	H410 – Very toxic to aquatic life with long lasting effects.
H242 – Heating may cause a fire.	H411 – Toxic to aquatic life with long lasting effects.
H250 – Catches fire spontaneously if exposed to air.	H412 – Harmful to aquatic life with long lasting effects.
H251 – Self-heating: may catch fire.	H413 – May cause long lasting harmful effects to aquatic life.
H252 – Self-heating in large quantities; may catch fire.	EUH 001 – Explosive when dry.
H260 – In contact with water releases flammable gases which may ignite spontaneously.	EUH 006 – Explosive with or without contact with air.
H261 – In contact with water releases flammable gases.	EUH 014 – Reacts violently with water.
H270 – May cause or intensify fire; oxidiser.	EUH 018 – In use, may form flammable/explosive vapour-air mixture.
H271 – May cause fire or explosion; strong oxidiser.	EUH 019 – May form explosive peroxides.
H272 – May intensify fire; oxidiser.	EUH 044 – Risk of explosion if heated under confinement.
H280 – Contains gas under pressure; may explode if heated.	EUH 029 – Contact with water liberates toxic gas.
H281 – Contains refrigerated gas; may cause cryogenic burns or injury.	EUH 031 – Contact with acids liberates toxic gas.
H290 – May be corrosive to metals.	EUH 032 – Contact with acids liberates very toxic gas.
H300 – Fatal if swallowed.	EUH 066 – Repeated exposure may cause skin dryness or cracking.
H301 – Toxic if swallowed.	EUH 070 – Toxic by eye contact.
H302 – Harmful if swallowed.	EUH 071 – Corrosive to the respiratory tract.
H304 – May be fatal if swallowed and enters airways.	EUH 059 – Hazardous to the ozone layer.
H310 – Fatal in contact with skin.	EUH 201 – Contains lead. Should not be used on surfaces liable to be chewed or sucked by children.
H311 – Toxic in contact with skin.	EUH 201A – Warning! Contains lead.
H312 – Harmful in contact with skin.	EUH 202 – Cyanoacrylate. Danger. Bonds skin and eyes in seconds. Keep out of the reach of children.
H314 – Causes severe skin burns and eye damage.	EUH 203 – Contains chromium (VI). May produce an allergic reaction.
H315 – Causes skin irritation.	EUH 204 – Contains isocyanates. May produce an allergic reaction.
H317 – May cause an allergic skin reaction.	EUH 205 – Contains epoxy constituents. May produce an allergic reaction.
H318 – Causes serious eye damage.	
H319 – Causes serious eye irritation.	
H330 – Fatal if inhaled.	
H331 – Toxic if inhaled.	
H332 – Harmful if inhaled.	

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<p>EUH 206 – Warning! Do not use together with other products. May release dangerous gases (chlorine)</p> <p>EUH 207 – Warning! Contains cadmium. Dangerous fumes are formed during use. See information supplied by the manufacturer. Comply with the safety instructions.</p> <p>EUH 208 – Contains (name of sensitising substance). May produce an allergic reaction.</p> <p>EUH 209 – Can become highly flammable in use.</p> <p>EUH 209A – Can become flammable in use.</p> <p>EUH 210 – Safety data sheet available on request.</p> <p>EUH 401 – To avoid risks to human health and the environment, comply with the instructions for use.</p> <p>P101 – If medical advice is needed, have product container or label at hand.</p> <p>P102 – Keep out of reach of children.</p> <p>P103 – Read label before use.</p> <p>P201 – Obtain special instructions before use.</p> <p>P202 – Do not handle until all safety precautions have been read and understood.</p> <p>P210 – Keep away from heat/sparks/open flames/hot surfaces. – No smoking.</p> <p>P211 – Do not spray on an open flame or other ignition source.</p> <p>P220 – Keep/Store away from clothing/.../combustible materials.</p> <p>P221 – Take any precaution to avoid mixing with combustibles...</p> <p>P222 – Do not allow contact with air.</p> <p>P223 – Keep away from any possible contact with water, because of violent reaction and possible flash fire.</p> <p>P230 – Keep wetted with...</p> <p>P231 – Handle under inert gas.</p> <p>P232 – Protect from moisture.</p> <p>P233 – Keep container tightly closed.</p> <p>P234 – Keep only in original container.</p> <p>P235 – Keep cool.</p> <p>P240 – Ground/bond container and receiving equipment.</p> <p>P241 – Use explosion-proof electrical/ventilating/lighting/.../equipment.</p> <p>P242 – Use only non-sparking tools.</p> <p>P243 – Take precautionary measures against static discharge.</p> <p>P244 – Keep reduction valves free from grease and oil.</p> <p>P250 – Do not subject to grinding/shock/.../friction.</p> <p>P251 – Pressurized container: Do not pierce or burn, even after use.</p> <p>P260 – Do not breathe dust/fume/gas/mist/vapours/spray.</p> <p>P261 – Avoid breathing dust/fume/gas/mist/vapours/spray.</p> <p>P262 – Do not get in eyes, on skin, or on clothing.</p> <p>P263 – Avoid contact during pregnancy/while nursing.</p> <p>P264 – Wash ... thoroughly after handling.</p> <p>P270 – Do no eat, drink or smoke when using this product.</p> <p>P271 – Use only outdoors or in a well-ventilated area.</p> <p>P272 – Contaminated work clothing should not be allowed out of the workplace.</p> <p>P273 – Avoid release to the environment.</p>	<p>P280 – Wear protective gloves/protective clothing/eye protection/face protection.</p> <p>P281 – Use personal protective equipment as required.</p> <p>P282 – Wear cold insulating gloves/face shield/eye protection.</p> <p>P283 – Wear fire/flame resistant/retardant clothing.</p> <p>P284 – Wear respiratory protection.</p> <p>P285 – In case of inadequate ventilation wear respiratory protection.</p> <p>P231 + P232 – Handle under inert gas. Protect from moisture.</p> <p>P235 + P410 – Keep cool. Protect from sunlight.</p> <p>P301 – IF SWALLOWED:</p> <p>P302 – IF ON SKIN:</p> <p>P303 – IF ON SKIN (or hair):</p> <p>P304 – IF INHALED:</p> <p>P305 – IF IN EYES:</p> <p>P306 – IF ON CLOTHING:</p> <p>P307 – IF exposed:</p> <p>P308 – IF exposed or concerned:</p> <p>P309 – IF exposed or if you feel unwell:</p> <p>P310 – Immediately call a POISON CENTER or doctor/physician.</p> <p>P311 – Call a POISON CENTER or doctor/physician.</p> <p>P312 – Call a POISON CENTER or doctor/physician if you feel unwell.</p> <p>P313 – Get medical advice/attention.</p> <p>P314 – Get medical advice/attention if you feel unwell.</p> <p>P315 – Get immediate medical advice/attention.</p> <p>P320 – Specific treatment is urgent (see ... on this label).</p> <p>P321 – Specific treatment (see ... on this label).</p> <p>P322 – Specific measures (see ... on this label).</p> <p>P330 – Rinse mouth.</p> <p>P331 – Do NOT induce vomiting.</p> <p>P332 – If skin irritation occurs:</p> <p>P333 – If skin irritation or rash occurs:</p> <p>P334 – Immerse in cool water/wrap in wet bandages.</p> <p>P335 – Brush off loose particles from skin.</p> <p>P336 – Thaw frosted parts with lukewarm water. Do no rub affected area.</p> <p>P337 – If eye irritation persists:</p> <p>P338 – Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P340 – Remove victim to fresh air and keep at rest in a position comfortable for breathing.</p> <p>P341 – If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.</p> <p>P342 – If experiencing respiratory symptoms:</p> <p>P350 – Gently wash with plenty of soap and water.</p> <p>P351 – Rinse cautiously with water for several minutes.</p> <p>P352 – Wash with plenty of soap and water.</p> <p>P353 – Rinse skin with water/shower.</p> <p>P360 – Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.</p>
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<p>P361 – Remove/Take off immediately all contaminated clothing.</p> <p>P362 – Take off contaminated clothing and wash before reuse.</p> <p>P363 – Wash contaminated clothing before reuse.</p> <p>P370 – In case of fire:</p> <p>P371 – In case of major fire and large quantities:</p> <p>P372 – Explosion risk in case of fire.</p> <p>P373 – DO NOT fight fire when fire reaches explosives.</p> <p>P374 – Fight fire with normal precautions from a reasonable distance.</p> <p>P375 – Fight fire remotely due to the risk of explosion.</p> <p>P376 – Stop leak if safe to do so.</p> <p>P377 – Leaking gas fire: Do not extinguish, unless leak can be stopped safely.</p> <p>P378 – Use ... for extinction.</p> <p>P380 – Evacuate area.</p> <p>P381 – Eliminate all ignition sources if safe to do so.</p> <p>P390 – Absorb spillage to prevent material damage.</p> <p>P391 – Collect spillage.</p> <p>P301 + P310 – IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.</p> <p>P301 + P312 – IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.</p> <p>P301 +P330 + P331 – IF SWALLOWED: rinse mouth. Do NOT induce vomiting.</p> <p>P302 + P334 – IF ON SKIN: Immerse in cool water/wrap in wet bandages.</p> <p>P302 + P350 – IF ON SKIN: Gently wash with plenty of soap and water.</p> <p>P302 + P352 – IF ON SKIN: Wash with plenty of soap and water.</p> <p>P303 + P361 + P353 – IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.</p> <p>P304 + P340 – IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.</p> <p>P304 + P341 – IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.</p> <p>P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P306 + P360 – IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.</p> <p>P307 + P311 – IF exposed: Call a POISON CENTER or doctor/physician.</p> <p>P308 + P313 – IF exposed or concerned: Get medical advice/attention.</p> <p>P309 + P311 – IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.</p> <p>P332 + P313 – If skin irritation occurs: Get medical advice/attention.</p> <p>P333 + P313 – If skin irritation or rash occurs: Get medical advice/attention.</p> <p>P335 + P334 – Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.</p>	<p>P337 + P313 – If eye irritation persists: Get medical advice/attention.</p> <p>P342 + P311 – If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.</p> <p>P370 + P376 – In case of fire: Stop leak if safe to do so.</p> <p>P370 + P378 – In case of fire: Use ... for extinction.</p> <p>P370 + P380 – In case of fire: Evacuate area.</p> <p>P370 + P380 + P375 – In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.</p> <p>P371 + P380 + P375 – In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.</p> <p>P401 – Store ...</p> <p>P402 – Store in a dry place.</p> <p>P403 – Store in a well-ventilated place.</p> <p>P404 – Store in a closed container.</p> <p>P405 – Store locked up.</p> <p>P406 – Store in corrosive resistant/... container with a resistant inner liner.</p> <p>P407 – Maintain air gap between stacks/pallets.</p> <p>P410 – Protect from sunlight.</p> <p>P411 – Store at temperatures not exceeding ... oC/...oF.</p> <p>P412 – Do not expose to temperatures exceeding 50 oC/122oF.</p> <p>P413 – Store bulk masses greater than ... kg/... lbs at temperatures not exceeding ... oC/...oF.</p> <p>P420 – Store away from other materials.</p> <p>P422 – Store contents under ...</p> <p>P402 + P404 – Store in a dry place. Store in a closed container.</p> <p>P403 + P233 – Store in a well-ventilated place. Keep container tightly closed.</p> <p>P403 + P235 – Store in a well-ventilated place. Keep cool.</p> <p>P410 + P403 – Protect from sunlight. Store in a well-ventilated place.</p> <p>P410 + P412 – Protect from sunlight. Do no expose to temperatures exceeding 50 oC/122oF.</p> <p>P411 + P235 – Store at temperatures not exceeding ... oC/...oF. Keep cool.</p> <p>P501 – Dispose of contents/container to ...</p>
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Classification & labeling of our products

We are at your service to provide further safety information and data needed to make a safe use of ExxonMobil Chemical fluids, Jayflex™ plasticizers, Exxal™ alcohols, ExxonMobil™ neo acids and higher olefins.

Fluids at a glance:

- [North America portfolio](#)
- [South America portfolio](#)
- [Europe, Middle East, Africa portfolio](#)
- [Asia Pacific portfolio](#)

Product data is available upon request. Please contact your **ExxonMobil Chemical sales representative**

Here is an overview of the type of information and data available to you upon request:

Human health:

- Toxicology study results and data;
- Product Health Information Profiles (HIPs);
- Occupational Exposure Limit (OEL) and Vapor Hazard Ratio (VHR) values.

Physical hazards:

- Product physicochemical properties.

Environment:

- Environmental toxicology study results and data;
- Product Environmental Profiles (PEPs)

Regulations:

- Generic exposure scenarios (GES);
- Product classification and labeling according to the main regulations;
- Regulatory compliance statements related to the use of our products in certain applications.

Fact sheets:

- Fact sheets that help clarify a number of topics such as OEL and VHR, flammability and static electricity, new fluids identification within REACH, etc.

Please contact your ExxonMobil Chemical sales representative for more information.

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Timelines for GHS adoption

See the list of the countries that have adopted and/or are considering implementing GHS

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Canada embraces GHS in a phased transitional plan

The [Hazardous Products Regulations](#) published in Canada Gazette (Part II) on February 11, 2015, confirmed Canada’s official adoption of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) and was the first step of a 4-year transitional plan.

Canada’s Workplace Hazardous Materials Information System (WHMIS), the national hazard communication standard in place since 1988, now incorporates GHS elements. The resulting WHMIS 2015 includes new standardized:

- Classification criteria
- Label requirements
- Safety data sheet (SDS) requirements (formerly material safety data sheet)

Multi-year transition period

A phased transition period is in effect where both WHMIS 1988 and WHMIS 2015 may be used.

Phases	Deadline for implementation	Manufacturers and importers	Distributors	Employees
Phase I	June 1, 2018	GHS mandatory	GHS optional	GHS optional
Phase II	September 1, 2018	GHS mandatory	GHS mandatory	GHS optional
Phase III	December 1, 2018	GHS mandatory	GHS mandatory	GHS mandatory

Main differences between WHMIS 1988 and WHMIS 2015

Under WHMIS 2015, “controlled products” are called “hazardous products” and there are:

- New rules for classifying hazardous workplace chemicals;
- Two main hazard classes – physical hazards and health hazards;
- New label requirements, including pictograms instead of symbols that correspond to hazard classes; the hatched border is no longer required;
- A different format for safety data sheets; a Canadian supplier identifier must be listed on the SDS and label unless the product is imported for own use.

For more information on WHMIS, [click here](#) or contact your ExxonMobil sales representative.



The OECD chemicals safety program





The [Organization for Economic Co-operation and Development](#) (OECD) provides a forum where governments can work together to seek solutions to common problems in order to improve the economic and social well-being of people around the world. Part of what OECD does is set international standards on topics ranging from agriculture and tax to the safety of chemicals.

The OECD program on chemicals safety translates the UN guidelines into practical tools for manufacturers of chemicals. Some of the tools are about testing chemicals, good laboratory practices (GLP), hazard and risk assessments, quantitative structure-activity relationships project (QSARs), etc.



Chemical management programs





The management of chemicals is a global responsibility not only for the chemical industry, but also for downstream users of chemicals, governmental regulatory authorities, and the public. In addition to the policies and practices initiated by chemical companies to ensure the safe use of the products they manufacture and sell, various laws and regulations have been established by regional or national authorities.

General principles »

Chemical management programs address themes such as hazard and exposure assessment, risk assessment and management for chemical substances.

REACH in Europe »

The EU chemical management program is called REACH for Registration, Evaluation, Authorization and Restriction of Chemicals.

REACH for non-EU manufacturers »

How REACH applies to non-EU manufacturers exporting products to the European Economic Area and the key points to remember.

TSCA in the United States »

The Toxic Substances Control Act (TSCA) of 1976 is the chemical management program in force in the US.

California Proposition 65 »

This law requires anyone doing business in California to label a product if human exposure to a listed substance is expected to be beyond a certain level.

Japanese law on chemical substances »

The Japanese Law Concerning the Examination and Regulation of Manufacture etc. of Chemical Substances establishes a system to prevent environmental pollution.

China provisions on new chemical substances »

In China, the Provisions on Environmental Administration of New Chemical Substances form a set of regulations very similar to EU REACH.

Canadian Environmental Protection Act »

In Canada, the chemical management program in force since March 21, 2000 is the Canadian Environmental Protection Act (CEPA).

Australia Industrial Chemicals Act »

The Industrial Chemicals (Notification and Assessment) Act 1989 ("IC (NA) Act") is an act that establishes a national system for the management of chemicals in Australia.

Turkey KKDİK »

KKDİK has some similarities to EU REACH. A summary of the draft legislation and deadlines are presented here.

The Act on Registration and Evaluation of Chemicals in Korea »

The Act on Registration and Evaluation of Chemicals, also known as "K-REACH," defines requirements for hazardous substances.

TCSCA in Taiwan »

Taiwan's Toxic Chemical Substances Control Act (TCSCA) incorporates many aspects of EU REACH.

Swiss Chemicals Ordinance (or ChemO) »

In Switzerland, the Swiss Chemicals Ordinance on Protection against Dangerous Substances and Preparations, also called ChemO, regulates existing and new substances placed on the market.

Thailand's first existing chemicals inventory »

Thailand is changing its regulations on chemicals management and is in the process of creating its first existing chemicals inventory.

Brazil's industrial chemical policy »

In 2016, Brazil's Ministry of Environment published a draft chemicals policy to establish an extensive framework regulating industrial chemicals.

General principles

Chemical management programs address themes such as hazard and exposure assessment and characterization, risk assessment, risk management and pollution prevention for chemical substances in commercial use. Control laws such as EU REACH, US TSCA, etc. typically manage chemicals by placing them on inventories, registries, and/or lists. For information on regulations in countries other than the ones mentioned below, please contact your ExxonMobil Chemical sales representative or distributor.

Naming conventions

Chemical legislations rely on identifying and characterizing substances from their composition and analytical information. The Chemical Abstracts Service (CAS) Registry is the historical database containing information on hundreds of thousands of chemical substances, including organic and inorganic compounds, minerals, isotopes, alloys and nonstructurable materials or UVCBs (substances of Unknown or Variable composition, Complex reaction products or Biological material). Each substance is identified by a CAS number.

The issue with characterizing UVCB substances using CAS descriptions only

In the case of UVCB substances, such as complex hydrocarbon solvents, characterization is often a challenge because of their complex origin and unknown and/or variable composition. The CAS description system in place can create confusion for two main reasons:

- The descriptions are broad and do not precisely describe hydrocarbon fluids that have narrower hydrocarbon ranges, additional processing steps compared to petroleum-based products and hence different hazard profiles and classifications
- One single hydrocarbon fluid substance may have different CAS numbers, either because of the source of production or because of the process by which it is manufactured

Alternative naming convention proposed by HSPA in 2011

This confusion was addressed in Europe when, in 2011, the Hydrocarbon Solvents Producers Association (HSPA) proposed an [alternative naming system](#) to characterize each hydrocarbon solvent with a qualitative and quantitative description of their composition to allow similar substances to be clearly identified, as required by the REACH regulation. This description or name is now used in Europe alongside CAS descriptions, which remain an official reference.

- All UVCB solvent substances were registered under EU REACH using this new identity, which uses a qualitative and quantitative description of their composition
- A new EC number was supplied by the European Chemical Agency (ECHA). It can be easily differentiated from the former EINECS/ELINCS as it is a 7-digit number systematically starting with 9xx-xxx-x
- Substances comprised of a single chemical species such as n-pentane, isopentane keep their EINECS#

On the **EU safety data sheets** of its complex hydrocarbon solvents, ExxonMobil Chemical indicates:

- Product name (following the naming convention) and EC# in Section 3 (“Composition/information on ingredients”)
- CAS# in Section 15 (“Regulatory information”) in Europe and Section 3 outside Europe

Further reading:

A [scientific review article](#) on the characterization of toxicological hazards of hydrocarbon solvents published in the Critical Reviews in Toxicology provides insight into the new naming convention for hydrocarbon solvents and how narrow manufacturing and/or technical specifications dictate the constituent composition and hazards.

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For more detail, see [OECD Guidance for Characterizing Hydrocarbon Solvents for Assessment Purposes](#).

For additional information, please read our [related article in the fluids news section](#) or contact your sales representative.

Inventories

Inventories are lists which generally include existing substances within a country/region. "New" substances are added by notification. Listing on an inventory typically applies to the manufacture or the import of the substance. Inventory identities are generally Chemical Abstracts Service (CAS) nomenclature based. Some of these [inventories](#) include:

- TSCA - United States Toxic Substances Control Act Inventory
- EINECS – European Inventory of Existing Commercial Chemical Substances
- DSL - Canadian Domestic Substance List
- ACIS - Australian Inventory of Chemical Substances
- KECI - Korea Existing Chemicals Inventory
- ENCS - Japan Handbook of Existing and New Chemical Substances
- PICCS - Philippines Inventory of Chemicals and Chemical Substances
- IECSC - Inventory of Existing Chemical Substances in China
- NZIoC - New Zealand Inventory of Chemicals

Registries and general lists

Registries are established as a means to gather information on substances which can either be prior to the manufacture or import of a substance, or via an annual submission of information. Some registries include:

- **REACH** - Registration, Evaluation, Authorisation and Restriction of Chemicals in the EU
- **TSCA CDR** - TSCA Chemical Data Reporting in the US

General lists may be established in situations where laws may differ on how substances are regulated (e.g., such as industrial versus consumer products) or when restrictions are implemented with specific substances identified. License or permit may be required prior to import, storage or use of such hazardous substances. Some examples include:

- **SVHC** - Substances of Very High Concern in the EU
- **TRI** - Toxics Release List in the US
- **2nd Schedule of EPMA** – List of controlled hazardous substances per the Environmental Protection and Management Act in Singapore

Given the continual adoption, changes, and updates to chemical control laws, it is recommended to consult national authorities' websites or seek professional.

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REACH in Europe

The EU chemical management program REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) – also called EU REACH – requires industry to manage the risks from chemicals by providing information on their properties and registering that data with the ECHA (European Chemical Agency). REACH has been adopted by all EU member states as well as the European Economic Area (EEA) countries of Norway, Iceland, and Lichtenstein.

A key aspect of EU REACH which distinguishes it from the UN Globally Harmonized System (GHS) of classification and labeling is the use of exposure scenarios.

REACH harmonizes and streamlines previous EU legislation on chemicals. It is a single system for new and existing chemicals, manufactured in or imported into the European Union. Historical chemical legislation such as restrictions on dangerous substances and safety data sheet requirements are now incorporated into REACH.

Introduction to EU REACH »

The REACH registration obligations are mandatory for manufacturers and importers of chemical substances in the EU if the volume exceeds 1 ton per year.

Downstream user obligations »

Manufacturers and importers were the main players during the first registration periods. More recently attention has shifted onto downstream users.

Exposure scenarios and ext-SDSs »

In REACH, a classified substance's safety data sheet must comprise relevant exposure scenarios. It is called an extended safety data sheet or ext-SDS.

Generic exposure scenarios and scaling solutions »

GESs and scaling are efficient solutions for evaluating and communicating health and environmental risks.

CLP regulations »

CLP is the EU Regulation (EC) No 1272/2008 on the Classification, Labeling and Packaging of substances and mixtures.

EU-REACH substance listing process »

The main processes and tools used for identification of Substances of Very High Concern (SVHC) and implementation of REACH Risk Management measures

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Introduction to EU REACH

REACH is the [Regulation \(EC\) No 1907/2006](#) of the European Parliament and of the Council of 18th December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals. It came into force on 1st June 2007.

Registration

The REACH registration obligations are mandatory for each manufacturer as well as each importer of chemical substances within scope of the regulation in the EU if the volume manufactured or imported exceeds 1 ton/yr. A key feature of the registration process is the need to identify uses of all classified substances and to develop an exposure scenario to identify the potential hazard exposure associated with the use.

Evaluation

Evaluation is a two-step process:

- First, the agency will perform a quality check of the registration dossiers to ensure completeness as well as to review the suitability and appropriateness of test proposals.
- Second, in coordination with competent authorities of Member States, substances will be reviewed with priority given to those identified as Substances of Very High Concern (SVHCs).

It is a risk-based approach that should take into account hazardous properties, the exposure and tonnage. A key regulatory outcome of the evaluation process could be the imposition of restrictions on the manufacture, supply or use of a substance. Substance evaluation may also lead to a substance being added to the priority list for authorization or a proposal to change the classification and labeling.

Authorization

Selected substances (i.e. Substances of Very High Concern or SVHC) will be subject to more in-depth scrutiny by the ECHA pertaining to their use and placement on the market. These substances include:

- CMRs (carcinogens, mutagens and reproductive toxins)
- PBTs (persistent, bio accumulative and toxic substances)
- vPvBs (very persistent and very bio accumulative substances)
- Substances for which there is scientific evidence of probable serious effects on humans and the environment.

The authorization process may lead to the prohibition of the substance or authorization for uses under specific conditions. Substances are authorized for a specified time period and only for nominated uses.

EU-REACH substance listing process

Read our article presenting the main processes and tools used for identification of Substances of Very High Concern (SVHC) and implementation of REACH Risk Management measures as presented in the Commission's "SVHC Roadmap to 2020":

- PACT-RMO
- CoRAP
- Candidate list for SVHC
- Annex XIV of REACH – authorization
- Annex XVII of REACH – restrictions

For further information on the EU-REACH substance listing process [click here](#), for REACH in general [click here](#).

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Downstream user obligations

Europe was the first region to apply risk assessment following a standardized process as part of EU REACH. The United States are exploring a similar route but nothing is defined yet. Manufacturers and importers were the main players during the first registration periods. Emphasis is now shifting to downstream users. For example, on reception of their updated safety data sheets, downstream users have 12 months to fulfill the obligations contained therein:

- Classification, Labeling and Packaging (CLP)
- Extended Safety Datasheet (ext-SDS)
- Risk Management Measures (RMM)

Classification, Labeling and Packaging (CLP)

On December 1, 2010, new package labeling requirements went into effect for suppliers of pure substances (not mixtures), including companies that repack pure products to sell them in a different format (e.g., a drum or can). The obligation to apply CLP requirements for mixtures will come in force on 1 June 2015.

Actors of the supply chain must contribute to the hazard and risk assessment of substances

Extended Safety Datasheet (ext-SDS)

The EU REACH regulation requires additional information on hazards associated with identified uses, i.e. exposure scenarios (ES), to be annexed to the SDS of classified substances. This forms the extended SDS (ext-SDS). ExxonMobil Chemical provides an ext-SDS for each relevant product to its downstream users, as required by REACH and CLP.

Exposure scenarios and extended safety datasheets are made available to users of a classified substance without delay once the hazard information becomes available. Downstream users (DUs) must verify whether the exposure scenarios they receive via an ext-SDS describe the conditions for their applicable uses on-site:

- First, a check needs to be done to see if the identified uses of a DU are included via the ES titles, use descriptors, main exposure determinants.
- Then, a check to see if all recommended operational conditions (OCs) and risk management measures (RMMs) are in place.

DUs must also pass on exposure scenarios further down the supply chain where relevant.

Risk Management Measures (RMM)

Downstream users are required to comply with RMMs within 12 months of receiving a product's registration number from their supplier. When DUs are in compliance with the conditions in the relevant ESs, this needs to be documented and information made available to the authorities in case of inspections. If not, several options are available:

- Implementation of the recommended RMMs and OCs;
- Communication to the supplier of the on-site conditions the DU has in place, with a request to update the relevant ES accordingly;
- Preparation of a DU chemical safety assessment;
- Scaling: recalculate exposure & risk using modeling tools using the on-site conditions.

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Our [self-tutorial presentation](#) identifies which are real obligations, which are mere recommendations and what the timeline for each one is. It also provides a visual representation of the process to help memorize the key steps.

Further guidance on exposure assessment is available from ECHA (the European Chemicals Agency):

- [Guidance on information requirements and chemical safety assessment, Chapter R.12: use descriptor system](#)
- [Guidance on information requirements and chemical safety assessment, Chapter R.16: environmental exposure estimation](#)
- [ECHA has developed a series of guidance documents to facilitate the implementation of the REACH legislation](#)

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Exposure scenarios and ext-SDSs

The safety data sheet (SDS) is a critical communication tool between supplier and downstream user about Health, Safety and Environmental information on the chemicals.

For classified substances, the EU REACH regulation requires additional information on hazards associated with identified uses to be added to the SDS. A SDS that includes one or several exposure scenarios as an annex is called an extended safety data sheet or ext-SDS.

The ext-SDS required by [REACH annex II](#) has 16 sections, but information has been reorganized. Existing information is to be found in different places and new information has been added, such as:

- REACH registration number
- REACH intended uses
- DNELs - PNECs
- PBT/vPvB statement
- Restrictions/authorizations

Key points about exposure scenarios – under discussion between the industry and regulators:

- If a product is either not classified or classified for physical/chemical hazards only, there is no need for an exposure scenario
- If a product is classified for environmental or human health hazards, an exposure scenario must be provided.

The latest edition of our [User's Guide to Safety Datasheet](#) explains the significant regulatory changes resulting from both [REACH Regulation \(EC\) No 1907/2006](#) and [Classification, Labeling & Packaging \(CLP\) Regulation \(EC\) No 1272/2008](#) that implements the Globally Harmonized System in Europe.

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Generic exposure scenarios and scaling solutions

Generic exposure scenarios (GESs) represent an efficient and pragmatic solution for evaluating and communicating health and environmental risks. They identify:

- How a substance is used and how it is handled.
- What operational conditions (OCs) are typical of each of its life-cycle steps.
- What risk management measures (RMMs) are enforced.
- What potential exposures can affect the environment and workers.

Each GES contains several contributing scenarios – or default scenarios - which describe the handling activities of the substance within one life cycle step, i.e. a specific use of the substance. A substance exposure scenario (ES) describes the typical conditions under which the use of a specific substance within one life cycle step is considered safe. All these factors, along with specific predicted no effects concentration (PNEC) for environment and derived no effect level (DNEL) for human health of the substances, are required to assess risk and to calculate the risk characterization ratio (RCR).

Once the conditions for safe use have been established, the exposure scenarios are documented in a chemical safety report (CSR) and communicated down the supply chain by annexing them to the safety data sheet (SDS) to make the extended safety data sheet (ext-SDS), as required by REACH.

We can **provide generic exposure scenarios or scaling solutions** that match your conditions.

We provide generic exposure scenarios to our customers, for any of our products for which a GES is applicable

ExxonMobil Chemical has been at the forefront of industry efforts in this area, working closely with groups such as ESIG (ESIG on [GES](#)). As a result, our extended safety datasheets (ext-SDSs) fully incorporate the GES principles and solutions. Widely endorsed, GESs have been incorporated into the European Chemicals Agency (ECHA)'s chemical safety assessment and reporting tool ([Chesar](#)) and the [CEFIC guidance on REACH exposure scenarios](#).

We also provide scaling solutions when our customers' use conditions are outside the GES frame

When conditions of use slightly fall outside the frame defined by the GES, there is a solution: scaling, an activity that must be carried out by the user of the substance. It is intended to determine if the exposure controls identified in the exposure scenarios (ESs) contained in ext-SDS are consistent with those being applied by the user. It identifies what actions are necessary if either the use has not been registered or local exposure control conditions differ significantly to those outlined in the GES.

If you would like to receive a GES for any of our products or more information on scaling techniques and solutions, please contact your ExxonMobil Chemical sales representatives or your distributor.

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CLP regulations

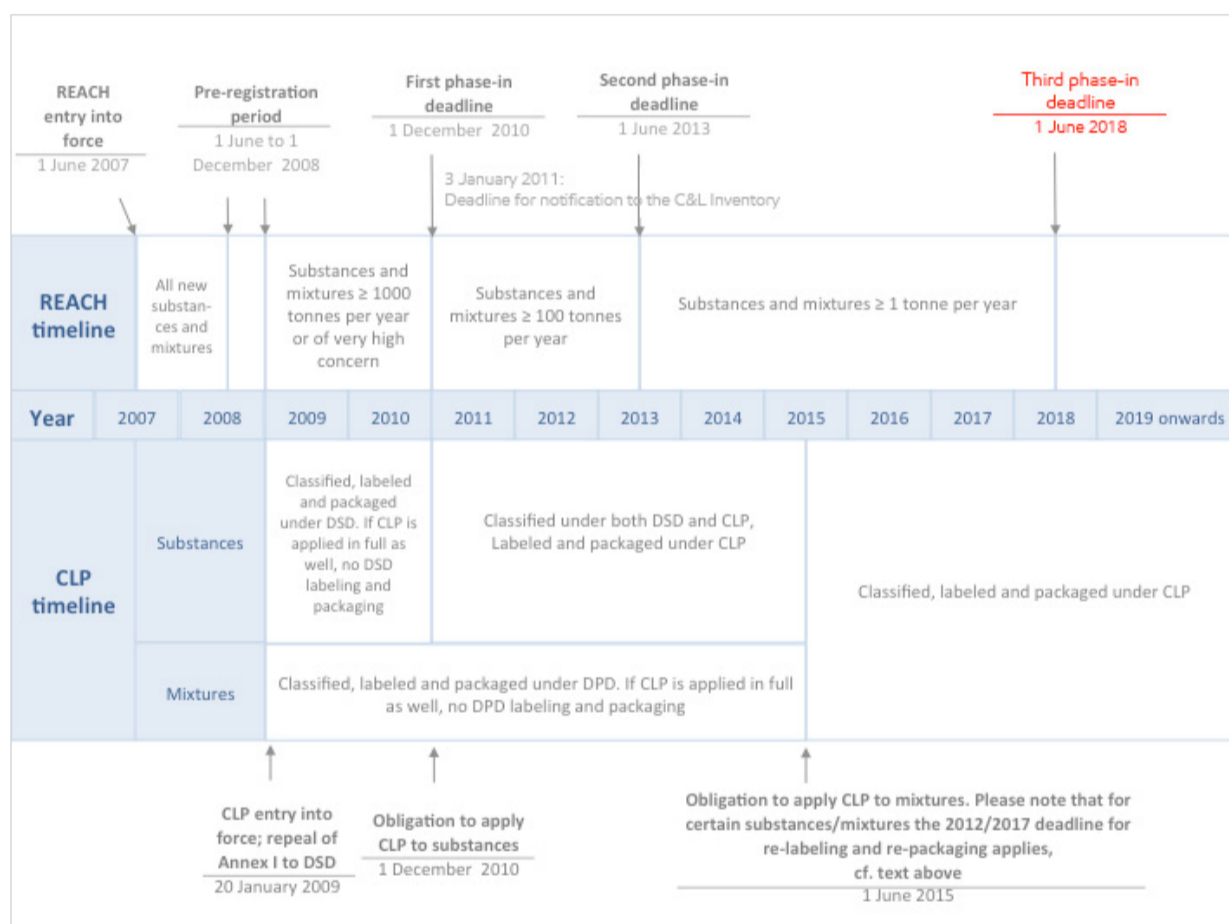
CLP is the [EU Regulation \(EC\) No 1272/2008](#) on the Classification, Labeling and Packaging of substances and mixtures. CLP introduces the United Nations globally harmonized system (UN GHS) for classification and labeling of chemicals into Europe and came into force on 20th January 2009

In Europe, CLP was adopted in parallel to REACH. As of 1 June 2015 [CLP requirements also apply to mixtures](#).

General timeline overview:

The CLP transitional provisions contain key dates that affect the classification and labeling of hazardous chemicals, substances and mixtures.

Spend a few moments with this graph:



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EU-REACH substance listing process

The main processes and tools used for identification of Substances of Very High Concern (SVHC) and implementation of REACH Risk Management measures as presented in the Commission’s “SVHC Roadmap to 2020” are presented below.

PACT-RMO

The Public Activities Coordination Tool (PACT) establishes a list of substances for which a risk management option analysis (RMOA) or an informal hazard assessment for persistent, bioaccumulative and toxic/very persistent and very bioaccumulative (PBT/vPvB) properties, endocrine disruptor properties or of equivalent concern is either under development or completed. The list is typically updated once a month.

View the list of substances published by [PACT-RMO](#).

CoRAP

As part of the process, ECHA requests that substances for which it has initial health and/or environmental concerns be added to the Community Rolling Action Plan (CoRAP). CoRAP is an on-going evaluation plan, updated in the first quarter of every year with substances to be screened during the following 3 years. Each substance is assigned a Member State in charge of reporting its evaluation outcome and provide a recommendation to ECHA.

The review may have multiple results:

- No additional action required, if the demonstration was made that implemented risk management is considered sufficient,
- or
- Further restrictions for the substance, e.g., harmonised CLP classification, SVHC proposal, Annex XVII restriction or other EU legislation.

It is important to note that while SVHC listing is one possible outcome of CoRAP, a substance will not automatically move from CoRAP to SVHC candidate listing.

Further information:

- [CoRAP plan update](#) covering the next 3 years
- Further information on [CoRAP](#).

Candidate List for SVHC

When a substance is identified as a Substance of Very High Concern (SVHC), it is placed on the Candidate List.

Twice a year, and prior to any update of the Candidate List, ECHA publishes a list of proposals for inclusion in it with options for all stakeholders to provide comments within 45 days. Subsequently, the EU Member State Committee (MSC) considers all input. If the MSC unanimously agrees, the proposed substances will be added to the Candidate List. If the MSC does not reach unanimous agreement on the identification of the SVHC, its opinion is referred to the Commission to come to a decision. This process takes approx. 3-4 months from the date the list is published until it is updated.

Member States (or ECHA upon request of the Commission) often declare their intention to submit a proposal, which is published on the ECHA website. View the current [Candidate List](#) published by ECHA.

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Restrictions – Annex XVII of REACH

Annex XVII of REACH is a list of substances or group of substances for which a specific use is restricted. Restrictions may limit or ban the manufacture, placing on the market or use of a substance.

After a proposal for restrictions is published by ECHA, stakeholders have 6 months to provide comments to the Risk Assessment Committee (RAC) and Socio-Economic Analysis Committee (SEAC). After RAC and SEAC have agreed to the proposal, their recommendation is published and an extra 60 days of public consultation open. Their final opinions are communicated to the Commission who takes the final decision for updating and publishing the List of Restrictions (REACH Annex XVII). The complete process is lengthy and could take several years.

View the current list of [substances restricted under REACH](#) published by ECHA.

Authorization – Annex XIV of REACH

Annex XIV of REACH contains a list of substances that are not allowed to be used unless authorized after submission of an application.

Once a year, ECHA screens the Candidate List to identify the substances that should be added to the Authorization List and publishes a proposed list on its website. Public consultation is then open for a period of 90 days. The process to a final decision on which substances to include on the Authorization List is complex and could take more than a year. Each substance moved to the Authorization List is given 2 dates:

- A “latest application date”, i.e. a deadline to submit an authorization dossier, usually 5-6 years after publication of the proposed list, and
- A “sunset date”, typically one year later, which is the latest date the substance can be used unless the authorization is granted.

View the current [Authorization List](#) published by ECHA.

Further information, click on these links:

- [ECHA SVHC Roadmap to 2020 Implementation Plan](#) (9 Dec 2013).
- For further information on REACH, visit our [dedicated page](#) or the [ECHA website](#).

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REACH for non-EU manufacturers

REACH applies to manufacturers based outside the European Economic Area (EEA) and exporting chemicals into the EEA. Here are the key points to remember:

REACH (Registration, Evaluation, Authorization of Chemicals) is a significant regulatory system for chemicals management in Europe. It applies to all chemical substances entering the EEA and requires all manufacturers and importers of chemical substances (pure substances or mixtures or products using them) based in the EEA to register their substances with the European Chemicals Agency (ECHA). For more information on REACH, [click here](#).

Rely on your importer or your "OR" to register and comply by the law

Manufacturers based outside of the EEA cannot register directly with ECHA. The responsibility for registering lies with their EEA-based importers or with their appointed "Only Representative" ("OR"). By law, the "OR," which can be an organization or individual, must be established within the EEA and must be knowledgeable about the substance or preparation exported to the EEA.

Failure to have an "OR" or the importer correctly register the substance will result in them being out of compliance with the REACH regulation and potentially exposed to fines or other enforcement actions by local authorities. This may result in the product being forbidden to enter the EEA and a negative impact on your business.

Registration needed or not?

As a global supplier, ExxonMobil has registered most of its fluids, plasticizers and chemical intermediates grades that it currently manufactures. However, whether our customers need to register the substances they purchase from us and that they plan to export to the EEA depends on the situation:

1. Export ExxonMobil substance manufactured in the EEA (i.e., Belgium, the Netherlands or the UK), either as pure substance, as part of a preparation or as part of an article:

Customers do not have to register the substance, but they must be able to provide proof of its origin at any time. We can provide the necessary letter or certificate.

2. Export ExxonMobil substance manufactured outside the EEA (i.e., in the U.S. or Singapore) either as a pure substance, as part of a preparation or as part of an article:

Customers' importers or "ORs" must register the substance, whether or not ExxonMobil has registered it independently.

Our Substance Information Profiles (SIPs) enable our customers to save registration time and hassle

For customers who must register a substance, we provide a comprehensive document called a Substance Information Profile (SIP) which contains relevant product information:

- The naming convention that will identify under which category the substance should be registered;
- Complete substance analytical results: composition details, gas chromatography (GC) and ultra violet (UV) results, etc.;
- A dedicated contact person at [REACH Centrum](#) (created to help companies prepare and implement REACH) to personally assist in the registration process.

This valuable document will facilitate the registration process. **Please contact your ExxonMobil sales person to get the SIP.**

To ensure that importers remain in compliance with REACH, ExxonMobil strongly advises customers to consult with their appropriate regulatory experts or counsel to determine what actions may be appropriate to continue exporting to the EEA.

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The [Cefic paper on imports in the EU](#) provides additional information about the REACH registration process and illustrates possible organizational options for non-EEA manufacturers.

Compare REACH and similar chemical management programs

To see similarities and differences between EU REACH and the chemical management programs in force in Turkey, South Korea and Taiwan, [click here](#).

Other obligations for downstream users

For other downstream users' obligations, please [click here](#) and read our dedicated page.

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TSCA in the United States

The Toxic Substances Control Act of 1976 provides the US Environmental Protection Agency (EPA) with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. Certain substances are generally excluded from TSCA, such as food, drugs, cosmetics and pesticides. Legislation is evolving in the US as industry starts implementing the UN Globally Harmonized System.

TSCA's main legal requirements »

An overview of the main legal requirements under TSCA.

GHS implementation in the United States »

OSHA has aligned its Hazard Communication Standards (HCS) with GHS.

Chemical safety for the 21st Century act »

Evaluation of existing chemicals by EPA opens opportunities for ExxonMobil's lower toxicity Exxsol™ D and Isopar™ fluids in solvent cleaning and degreasing applications.

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TSCA's main legal requirements

Under TSCA, the main legal requirements cover the following areas:

Section 4

Testing of chemicals by manufacturers, importers, and processors where risks or exposures of concern are found.

Section 5

- Pre-manufacture notification for "new chemical substances" before manufacture
- Issue of a Significant New Use Rules (SNURs), when a "significant new use" that could result in exposures to, or releases of, a substance of concern is identified.

Section 8

- Maintenance of the TSCA Inventory, which contains more than 83,000 chemicals. As new chemicals are commercially manufactured or imported, they are placed on the list.
- Reporting and record-keeping by persons who manufacture, import, process, and/or distribute chemical substances in commerce.

Section 8(e)

Requirement that any person who manufactures (including imports), processes, or distributes in commerce a chemical substance or mixture and who obtains information which reasonably supports the conclusion that such substance or mixture presents a substantial risk of injury to health or the environment should inform EPA without delay, except where EPA has been adequately informed of such information.

Sections 12(b) and 13

Requirement that those importing or exporting chemicals comply with certification reporting and/or other requirements.

For further information on TSCA, please [click here](#)

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GHS implementation in the United States

OSHA, the US Occupational, Safety and Health Administration, has aligned its Hazard Communication Standards (HCS) with the UN Globally Harmonized System (GHS).

This new situation means that:

- Label elements (i.e., pictograms, hazard statements, precautionary statements, and signal words) are updated
- Safety Data Sheets (SDS) are updated
- Training to workers is provided

OSHA required employees to be trained on the new labels and SDS format by December 1, 2013, while full compliance with the final rule began in 2015.

The table below provides an overview of the main compliance steps involved:

Effective Completion Date	Requirement(s)	Who
June 1, 2015* December 1, 2015	Compliance with all modified provisions of this final rule, except: The Distributor shall not ship containers labeled by the chemical manufacturer or importer unless it is a GHS label	Chemical manufacturers, importers, distributors and employers
June 1, 2016	Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards.	Employers
Transition Period to the effective completion dates noted above	May comply with either 29 CFR 1910.1200 (the final standard), or the current standard, or both	Chemical manufacturers, importers, distributors, and employers

*This date coincides with the EU implementation date for classification of mixtures

For more information:

- [OSHA's excellent Questions & Answers document on GHS](#)
- [OSHA and Hazard Communication](#)

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Chemical safety for the 21st Century act

Evaluation of existing chemicals by EPA opens opportunities for ExxonMobil's lower toxicity Exxsol™ D and Isopar™ fluids in solvent cleaning and degreasing applications

The Frank R. Lautenberg Chemical Safety for the 21st Century Act which amends the Toxic Substances Control Act (TSCA), the Nation's primary chemicals management law, was signed into law on June 22, 2016. This significant amendment has led to changes including:

- The mandatory evaluation by EPA of existing chemicals;
- New risk-based safety standards – for human health and the environment;
- New restrictions on the use of several chemicals, including some solvents;
- This affects local and foreign companies selling chemical products in the US.

Deadlines

The newly amended TSCA requires the EPA to have at least 20 ongoing risk evaluations by the end of 2019. The first ten chemicals to be evaluated were announced on December 19, 2016. Once a chemical has been selected, the complete risk evaluation must be carried out within three years. If it is determined that a chemical presents an unreasonable risk, EPA must impose restrictions to mitigate that risk within two years.

Based on risk evaluations completed by EPA in 2014 and 2015 that focused on targeted end use applications, the EPA has now proposed restrictions on the use of some of these substances under the amended TSCA, such as the use of trichloroethylene in solvent and vapour degreasing applications, and methylene chloride and NMP in paint stripping applications. Please [click here](#) for more information.

Broader evaluation under the new Chemical Prioritization Process could lead to new restrictions for these and other substances.

The EPA top ten list of substances identified for risk evaluation

Amongst the first list of ten chemicals identified for risk evaluation, six, as listed below, are used in solvent cleaning and degreasing applications for which ExxonMobil offers premium fluids Exxsol™ D40, D60 and D80 as well as Isopar™ L as possible replacements:

- Tetrachloroethylene
- Trichloroethylene
- 1-Bromopropane
- Methylene chloride
- N-methylpyrrolidone (NMP)
- Carbon Tetrachloride

For a non-exhaustive summary of the regulatory status of these products, please [click here](#).

Exxsol™ D and Isopar™ fluids offer competitive benefits in solvent cleaning and degreasing applications

Cleaning with Exxsol™ D or Isopar™ cleaning solvents has numerous benefits versus chlorinated solvents for both workers and the environment. Chlorinated solvents such as TCE (trichloroethylene) and PCE (perchloroethylene, also known as tetrachloroethylene) have a strong odor and carry various adverse health classifications requiring very low exposure limits for workers. Perchloroethylene is also classified as "toxic to aquatic life with long lasting effects" under GHS classification. As discussed below, Exxsol D and Isopar cleaning solvents have low aromatic content and are not classified as "toxic to aquatic life with long lasting effects in North America."

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Exxsol™ D40, D60 and D80 fluids easily tailor to different cleaning and degreasing conditions and preferences

Exxsol™ D40, D60 and D80 solvents effectively remove cutting fluids, greases, protective oils and similar contaminants, as well as waxes and surfactants under mechanical agitation such as brushing, wiping or ultrasound.

[Safety information of Exxsol™ D compared to traditional solvents](#)

Isopar™ G, H or L are a preferred solution for tough cleaning challenges

Virtually odorless, Isopar™ G, H or L are often preferred for industrial cleaning for a low odor, safer working environment than traditional solvents. In addition to removing cutting fluids, greases, protective oils and similar contaminants, Isopar solvents can also remove waxes and surfactants with mechanical agitation such as brushing, wiping or ultrasound. Isopar solvents perform in some of the toughest cleaning challenges, such as cleaning parts with complex geometry that may be difficult to clean and dry.

[Safety Data of Isopar™ compared to traditional solvents](#)

For more information, please contact your ExxonMobil sales representative.


Non-exhaustive summary of the regulatory status

Product	Regulatory status
Tetrachloroethylene	<ul style="list-style-type: none"> Ban for use in dry cleaning in California’s South Coast Air Quality Management District (Los Angeles and surrounding area) announced in 2002, effective 2020. Ban for use in dry cleaning in the rest of California announced in 2006, effective 2023. On EPA ‘Top 10’ list – uses to be evaluated to determine if they pose an unreasonable risk.
Trichloroethylene	<ul style="list-style-type: none"> Proposed ban on import, processing and distribution of TCE into commerce in U.S. for use in aerosol and vapor degreasing, and for use as a dry-cleaning spot cleaner announced in January 2017, effective 6 months from publication of the final rule On EPA ‘Top 10’ list – additional uses to be evaluated to determine if they pose an unreasonable risk.
1-Bromopropane (1-BP or n-propyl bromide)	<ul style="list-style-type: none"> On EPA ‘Top 10’ list – uses to be evaluated to determine if they pose an unreasonable risk.
Methylene chloride (dichloromethane or DCM)	<ul style="list-style-type: none"> Proposed ban on the use in paint strippers in U.S. announced in January 2017. On EPA ‘Top 10’ list – additional uses to be evaluated to determine if they pose an unreasonable risk.
N-methylpyrrolidone (NMP)	<ul style="list-style-type: none"> Proposed ban on the use in paint strippers in U.S. announced in January 2017. On EPA ‘Top 10’ list – additional uses to be evaluated to determine if they pose an unreasonable risk.
Carbon Tetrachloride	<ul style="list-style-type: none"> On EPA ‘Top 10’ list – uses to be evaluated to determine if they pose an unreasonable risk.

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Safety information of Exxsol™

Performance compared to traditional solvents

Performance	ExxonMobil solvents			PCE	TCE
	Exxsol™ D40	Exxsol™ D60	Exxsol™ D80	Perchloroethylene	Trichloroethylene
GHS carcinogenic, mutagenic, reproductive classification	none	none	none	H351: suspected of causing cancer	H350: may cause cancer H341: suspected of causing genetic defects
Occupational exposure limit (OEL – mg/m3)	1,200	1,200	1,200	169	54
Flash point (typical)	44	65	83	not applicable	not applicable
Boiling range (typical)	160	190	207	121	86
GHS labelling for environmental hazards	none	none	none		none

Notes

- All comparisons of product performance and safety data are to chlorinated solvents unless otherwise stated
- OEL listed is Association Advancing Occupational and Environmental Health (ACGIH) recommended time weighted average (TWA) for PCE and TCE
- Source for OELs of Exxsol™ solvents: reciprocal calculation procedure (RCP) - TWA - ExxonMobil data
- The replacement of a non-flammable solvent with a hydrocarbon fluid that can be flammable requires appropriate equipment and assessment
- Test methods are available upon request and consistent with sales specifications


Features and benefits of Exxsol™ D

Features	Benefits
<ul style="list-style-type: none"> • Low odor, with an aromatic content typically less than 0.5% • Not classified as an environmental hazard under the Globally Harmonized System of Classification and Labelling of chemicals (GHS) • Markedly lower risk from overexposure than chlorinated solvents • Low order of toxicity to humans • Globally available 	<ul style="list-style-type: none"> • Improved worker protection and comfort <ul style="list-style-type: none"> • Significantly higher occupational exposure limits and markedly lower risk of over exposure to vapor than chlorinated solvents • Improved working environment • Low solvent consumption by weight • Efficient cleaning without damaging parts, including most plastics and elastomers

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Safety information of Isopar™

Performance compared to traditional solvents

Performance	ExxonMobil solvents			PCE	TCE
	Isopar™ G	Isopar™ H	Isopar™ L	Perchloroethylene	Trichloroethylene
GHS carcinogenic, mutagenic, reproductive classification	none	none	none	H351: suspected of causing cancer	H350: may cause cancer H341: suspected of causing genetic defects
Occupational exposure limit (OEL – mg/m3)	1,200	1,200	1,200	169	54
Flash point (typical)	44	53	63	not applicable	not applicable
Boiling range (typical)	165	178	290	121	86
GHS labelling for environmental hazards	none	none	none		none

Notes

- All comparisons of product performance and safety data are to chlorinated solvents unless otherwise stated
- OEL listed is Association Advancing Occupational and Environmental Health (ACGIH) recommended time weighted average (TWA) for PCE and TCE
- Source for OELs of Exsol™ solvents: reciprocal calculation procedure (RCP) - TWA - ExxonMobil data
- The replacement of a non-flammable solvent with a hydrocarbon fluid that can be flammable requires appropriate equipment and assessment
- Test methods are available upon request and consistent with sales specifications

Features and benefits of Isopar™

Features	Benefits
<ul style="list-style-type: none"> • Excellent product consistency • Compatible with most plastics and elastomers • High chemical and thermal stability • Narrow distillation range for optimal compromise between high flash point and drying time • Virtually odorless, with an aromatic content less than 0.01% • Markedly lower risk of overexposure than chlorinated solvents • Globally available 	<ul style="list-style-type: none"> • Improved worker protection and comfort <ul style="list-style-type: none"> • Significantly higher occupational exposure limits and lower risk of overexposure to vapor • Improved working environment • Lower solvent consumption by weight • Less stringent ventilation requirements than chlorinated solvents • Efficient cleaning without damaging parts, including most plastics and elastomers

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California Proposition 65

Proposition 65 (Prop 65) is the original name for the ballot initiative that became California's Safe Drinking Water and Toxic Enforcement Act of 1986. It is administered by the Office of Environmental Health and Hazard Assessment (OEHHA) a part of the California Environmental Protection Agency (Cal/EPA).

The Prop 65 regulation states that "no person, in the course of doing business, may knowingly and intentionally expose any individual to a Proposition 65 listed chemical without first giving clear and reasonable warning to that individual".

Under Prop 65, the Governor of California must issue an annual list of substances "known to the State" to cause cancer, birth defects or reproductive harm. Currently, there are more than 800 substances on this list, including additives or ingredients in food and many common household products, naturally occurring substances, ethyl alcohol in alcoholic beverages, aspirin, and many prescription drugs. Prop 65 requires anyone doing business in California to label a product if human exposure to a listed substance in the product is expected to be at a level that would cause an unreasonable risk. For certain products, this level is identified with a published "safe harbor" value. For the vast majority of substances listed on Prop 65, a safe harbor level has not been published.

A Prop 65 listing is **not a safety determination and does not mean that a product is in "violation of any product-safety standards."**

A business has a "safe harbor" from Prop 65 warning requirements if exposure to a substance occurs at or below the identified "safe harbor level" for that chemical.

- For substances that are listed as causing cancer, the "safe harbor" level is called a "no significant risk level" (NSRL). An NSRL is defined as the level of exposure that would result in not more than one excess case of cancer in 100,000 individuals exposed to the substance over a 70-year lifetime. In other words, a person exposed to the substance at the "no significant risk level" for 70 years would not have more than a "one in 100,000" chance of developing cancer as a result of that exposure.
- For substances listed as causing reproductive or developmental toxicity, the safe harbor level is called a "maximum allowable daily limit (MADL). A MADL is defined as the "no adverse effect level" (NOAEL) from animal studies divided by 1000.

In order to assess the need for warnings under Prop 65, various pieces of information about the listed chemical are needed e.g., the established safe harbor level and various physicochemical properties. These data are used to determine whether the estimated exposure to a human from a product containing a listed chemical is above or below the safe harbor level for that chemical.

It is also important to note that a Prop 65 listing is not a safety determination. Indeed, according to OEHHA, the purpose of Prop 65 is to notify consumers that they may be exposed to a listed substance, but a Prop 65 product warning label does not mean that a product is in "violation of any product-safety standards." The Prop 65 warning requirements can be enforced through civil lawsuits brought by the California Attorney General, certain district and city attorneys, or private parties acting in the public interest. As stated by OEHHA, Prop 65 "does not ban or restrict the use of any given chemical." **It is not a regulation or a restriction on use, it is a labeling requirement that applies in certain instances.** Lastly, Proposition 65 is a California law, and its list does not affect other U.S. states or European, Latin American, Canadian, or Asia Pacific regulations.

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Japanese law on chemical substances

The purpose of the [Japanese Law Concerning the Examination and Regulation of Manufacture etc. of Chemical Substances](#) is to establish a system to prevent environmental pollution by chemical substances that poses a risk of impairing human health or of interfering with the population and/or growth of flora and fauna.

The act's main areas of focus:

- Evaluation of the properties of new chemical substances before their manufacture or import
- Implementation of necessary regulations with respect to the manufacture, import, use, etc. of chemical substances, with due consideration to their properties, etc.

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China provisions on new chemical substances

On 19 January 2010, the [Ministry of Environmental Protection](#) (MEP) of China released the revised version (the Order No. 7) of the Provisions on Environmental Administration of New Chemical Substances. The new regulation replaced the old regulation issued in 2003 and came into force on 15 Oct 2010. This regulation is similar to EU REACH.

Under this regulation, companies submit new chemical substance notification to the Chemical Registration Centre (CRC) of the Ministry of Environmental Protection (MEP) for the new chemicals irrespective of annual tonnage, i.e. chemicals other than the approximately 45,000 substances currently listed on the Inventory of Existing Chemical Substances Produced or Imported in China (IECSC).

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Canadian Environmental Protection Act

The [Canadian Environmental Protection Act](#) (CEPA) provides for the gathering of information for research and the creation of inventories of data, which are designed for publication, and for the development and publishing of objectives, guidelines and codes of practice. CEPA 1999 came into force on March 31, 2000 following an extensive parliamentary review. CEPA 1999 contains significant improvements for the protection of the environment over the former act.

It establishes:

- pollution prevention as the cornerstone of national efforts to reduce toxic substances in the environment;
- processes to assess the risks to the environment and human health posed by substances in commerce;
- timeframes for managing toxic substances;
- a wide range of tools to manage toxic substances, other pollution and wastes;
- the phasing out of most harmful substances or the ban of their release into the environment in any measurable quantity;
- new provisions to regulate vehicle, engine and equipment emissions;
- enforcement of the act and its regulations;
- greater citizen input into decision-making; and
- more effective cooperation and partnership with other governments and aboriginal peoples.

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Australia Industrial Chemicals Act

The [Industrial Chemicals \(Notification and Assessment\) Act 1989](#) ("IC(NA) Act") is an act to establish a national system of notification and assessment of industrial chemicals, to provide for registration of certain persons proposing to introduce industrial chemicals, to provide for national standards for cosmetics imported into, or manufactured in, Australia, and for related purposes.

The objects of the IC(NA) Act are to provide for:

- A national system of notification and assessment of industrial chemicals for the purposes of:
 - aiding in the protection of the Australian people and the environment by finding out the risks to occupational health and safety, to public health and to the environment that could be associated with the importation, manufacture or use of the chemicals
 - providing information, and making recommendations, about the chemicals to Commonwealth, State and Territory bodies with responsibilities for the regulation of industrial chemicals
 - giving effect to Australia's obligations under international agreements relating to the regulation of chemicals
 - collecting statistics in relation to the chemicals
 - being a system under which information about the properties and effects of the chemicals is obtained from importers and manufacturers of the chemicals.
- National standards for cosmetics imported into, or manufactured in, Australia and the enforcement of those standards.

Australia reforms NICNAS

In May 2015, the Australian government announced a simplification of its National Industrial Chemicals Notification and Assessment Scheme (NICNAS). NICNAS is the regulatory body in charge of assessing the risk of industrial chemicals and providing information to promote their safe use, under the Industrial Chemicals (Notification and Assessment) Act 1989 ("IC(NA) Act").

These chemical risk assessments provide information of decisions made by Commonwealth, state and territory government agencies involved in regulating the control, use, release and disposal of industrial chemicals.

The reforms to NICNAS aim to reduce regulatory burden on the industrial chemicals sector by streamlining assessment processes and refocusing assessment effort on higher risk industrial chemicals, while also ensuring that Australia's robust safety standards are maintained. The reforms involve:

- Rebalancing pre- and post-market regulatory requirements to match the indicative risk profile of a new chemical;
- Streamlining the existing risk assessment process for new and existing chemicals;
- Greater utilization of international assessment materials;
- More appropriate compliance tools.

Several rounds of public and stakeholder consultation have taken place and the final consultation paper was published in October 2016. The framework is expected to take effect from Jul 1, 2019. We will let our customers know of new developments that may impact their business.

For more information, please visit the [NICNAS website](#) or contact your ExxonMobil sales representative.

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Turkey KKDIK

On June 23, 2017, the Ministry of Environment and Urbanization (MoEU) in Turkey published its REACH-like KKDIK regulation. The KKDIK regulation will come into force on December 23, 2017, requiring companies to register all substances manufactured in Turkey or imported into Turkey with volume above 1 ton/year before given deadlines:

- December 31, 2020: pre-registration deadline;
- December 31, 2023: Registration deadline.

Data required for registration is dependent upon volume:

- Below one ton per year: no information
- One to 1,000 tons per year: basic information
- Above 1,000 tons per year: extensive information

All notifications were submitted by March 31, 2011 via an online database. For new substances manufactured or imported for the first time after March 31, 2011, the notification information must be submitted within 15 months from the date the substance was manufactured or imported for the first time.

Aspects similar to EU REACH:

- Registrations will include information on the use of substance
- Registrations may be done as pure substances or intermediates
- Some exemptions will apply (e.g., natural occurring substances, waste, etc.)
- A Chemical Safety Assessment (CSA) and, if appropriate, a Chemical Safety Report (CSR) are required for hazardous substances produced or imported in quantities above 10 tons/year
- Data will be shared in the MBDF system, similar to the Substance Information Exchange Forum (SIEF) in the EU
- Importers may rely on non-Turkish manufacturers or formulators to appoint an Only Representative ("OR") based in Turkey
- Once registration is completed, the SDS should have an annex containing exposure scenario information, if applicable

Differences with EU REACH:

- No staged registration deadlines or pre-registration phase
- Registration data will be sent electronically to the Ministry of Environment and Urbanization (as opposed to an agency in the EU REACH)
- All registration information should be in Turkish language

To see further similarities and differences between EU REACH, KKDIK and the chemical management programs in force in South Korea and Taiwan, [click here](#).

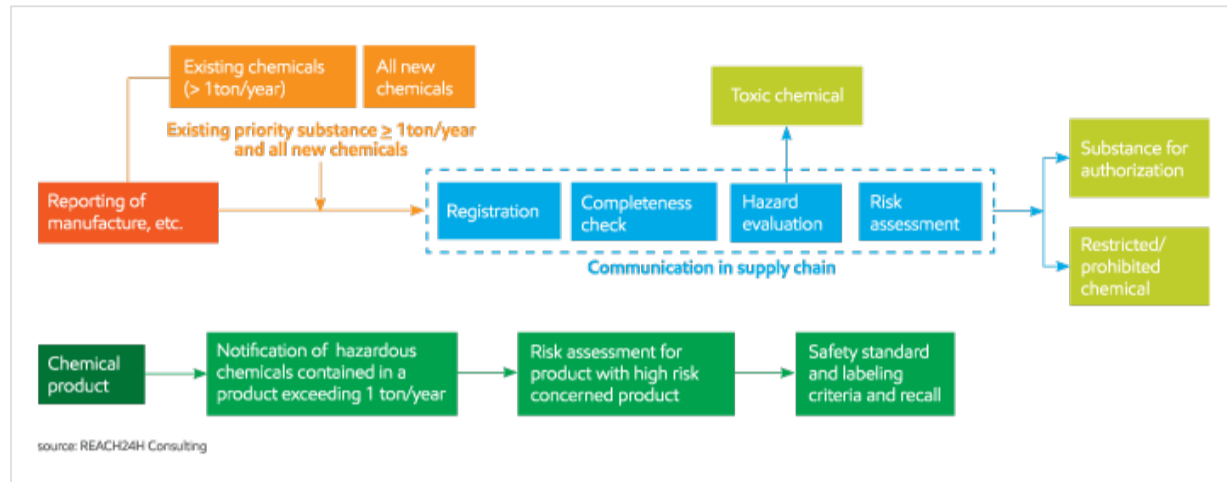
For more information, please contact your ExxonMobil sales representative.

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The Act on Registration and Evaluation of Chemicals in Korea

It defines the requirements for reporting, registration and notification of manufactured and imported new and existing chemical substances as well as downstream products containing hazardous substances.

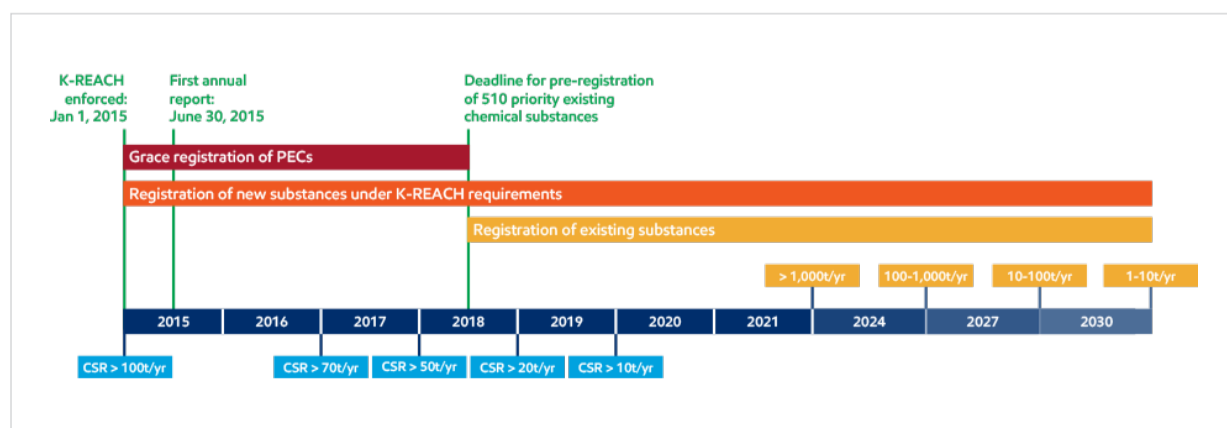


- Existing chemicals are those listed in the Korea Existing Chemicals Inventory (KECI).
- New products are those not listed in the KECI.
- The KECI also includes a list of priority evaluation chemicals (PECs) which are considered a potential risk to human health and environment. The first PEC list was published by the Ministry of Environment (MoE) on July 1, 2015. None of the ExxonMobil Chemical hydrocarbon fluids are on the list. MEK oxygenated fluid and DINP and DIDP plasticizers are listed.
- Existing chemicals are those listed in the Korea Existing Chemicals Inventory (KECI).
- New products are those not listed in the KECI.

Manufacturers or importers of new chemicals and priority evaluation chemicals (PECs) shall submit registration to the MoE prior to manufacture and import. Companies established outside Korea, will rely on their Korea-based importer or Only Representative (OR) to carry out K-REACH registration. Manufactures, importers and "ORs" will be responsible for:

- Annual reporting
- Registration
- Information communication with downstream users and sellers
- Product notification
- New products are those not listed in the KECI.

K-REACH Timeline



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Annual reporting

Manufacturers, importers or sellers of existing chemical substances in quantities at or above one ton per year and of all new chemical substances, regardless of the tonnage, must report substance tonnage and use to the MoE by June 30 every year.

Registration

Substances that are subject to registration:

- All new chemical substances, regardless of tonnage
- The priority evaluation chemicals selected from the Korean Existing Chemicals Inventory which are manufactured or imported in quantities at or over one ton per year
- Substances that have been examined for hazardousness and published by the MoE, regardless of tonnage

Unlike the EU REACH, which covers all existing chemicals indiscriminately, K-REACH requires registration only for the PECs designated by the MoE. A simplified registration requiring less data applies to new chemical substances in volumes below one ton per year (to be reduced to 0.1 ton/year after 2020).

Registration types:

- Joint submission of registration dossiers on the same chemicals is mandatory under K-REACH, following the EU REACH principle of data sharing
- Individual submission may be allowed by the MoE under certain conditions.

Transitional period:

- For new chemical substances, there is no transitional period. They are subject to systematic registration prior to manufacture or import
- For any PEC, there is a transitional period of three years from the publication of the priority list.

Risk assessment

Risk assessment is required for PECs and new substances manufactured or imported at or above a volume of 10 tons per year. Deadlines for submitting risk assessments depend on product volumes as shown in the timeline above.

Risk assessment will be performed by experts appointed by the MoE. Appropriate safety and labeling criteria will be issued by the MoE for the high risk concerned products based on the results of risk assessment.

Information communication with downstream users and sellers

K-REACH establishes a two-way communication system whereby suppliers should provide chemical information to recipients, and vice versa. The manufacturer and importer of a registered substance or mixture containing a registered substance should provide registration number, chemical name, hazard and risk information, safe use information to the downstream user and seller – included in the SDS. Downstream users and sellers should also provide manufacturers or importers the use, exposure, volume of use or sale, safe use information, etc. upon request. If any change occurs, the update should be communicated to upstream and downstream parties within one month.

Product notification

Product notification to MoE is required for manufacturers or importers if the hazardous chemical substance contained in the product exceeds one ton per year and 0.1% weight ratio threshold. If the hazardous substance has already been registered under K-REACH, the product can be manufactured or imported without production notification if the “Exemption Confirmation of Notification” from MoE is obtained in advance.

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Differences with EU REACH

- Registration of PEC and new substances do not require use-specific risk assessment reports.
- Annual volume and use reporting for all imports and manufactured substances.
- Priority existing chemical (PEC) registration.
- Notification of risk-concerned consumer products.
- Not all substances require full registration, only those on the PEC list.
- No pre-registration in Korea.
- Only representative (OR) can be appointed by the non-Korean supplier, regardless of whether it's the original manufacturer or not.
- There is no Substance Information Exchange Fora (SIEF) concept in K-REACH. Instead, there is an IT system developed by the Korean government for information sharing and exchange.
- All registration information should be in the Korean language.
- Official legislation will only be available in the Korean language.
- There are no intermediate exceptions in Korea.

Compare REACH, AREC and other similar chemical management programs

To see further similarities and differences between EU REACH, AREC and the chemical management programs in force in Turkey and Taiwan, [click here](#).

For more information on K-REACH, please [click here](#).

If you need further assistance, please contact your ExxonMobil sales representative.

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TCSCA in Taiwan

Taiwan's Toxic Chemical Substances Control Act incorporates aspects of EU REACH

The Toxic Chemical Substances Control Act (TSCA), the most important chemical control law in Taiwan, was revised to introduce many of the EU REACH regulation concepts into Taiwan. Its revision of articles was promulgated by President Order on Dec 11, 2013 and became effective from Dec 11, 2014. Article 7-1 of the newly amended TCSCA enables the Taiwanese Environmental Protection Agency (EPA) to gather information and screen toxic chemical substances. It stipulates:

- The sources of management of chemical substances;
- That existing chemical substances manufactured or imported in given quantities each year must be registered by the designated deadlines after being manufactured or imported;
- That all new chemical substances must be registered 90 days before being manufactured or imported;
- And that the registration should be approved by the central competent authority, Taiwan Environmental Protection Administration (Taiwan EPA).

In addition, TCSCA requires companies that manufacture, import, export, sell, transport, use, store or discard certain controlled toxic chemical substances to apply for permits, to register or get approval to operate and comply with the reinforced management measures.

Registration

Under TCSCA, registrants are domestic manufacturers and importers of chemical substances or their appointed third-party representative (TPR). Foreign companies cannot register directly.

Category	Registration type	Who	When
New substance	3 registration types, depending on volumes and uses: standard, simplified or small quantity registration	<ul style="list-style-type: none"> • Manufacturer • Importer • Representative 	90 days before manufacturing or exporting
Existing substance	Phase 1 registration*	<ul style="list-style-type: none"> • Manufacturer • Importer • Representative 	
	All existing substances imported before March 31, 2016 (≥ 0.1 ton/year).		Registration deadline: 31 March 2016
	Existing substances, manufactured or imported for the first time after Apr 1, 2016 (≥ 0.1 ton/year).		Registration deadline: within 90 days after being manufactured or imported
	Phase 2 registration Listed existing substances as defined by EPA.		Standard registration: grace period to be defined by the EPA

* Phase 1 registration is similar to pre-registration under EU REACH

Source: ChemSafetyPro.com

Phase 1 registration of existing substances

All existing chemicals manufactured or imported in quantities over 0.1 ton (i.e., 100 kg) per year will be subject to Phase 1 registration for approval prior to their manufacture or importation.

Registration requires submission of basic information, including:

- Registrants' information
- CAS No. of chemical substance
- Annual volume band
- Usage information

From the information collected during phase 1 registration, EPA will assign to a Priority Existing Chemicals (PEC) list substances of concern – with hazardous properties or high exposure potential – or for which information has not yet been fully identified. These will go through phase 2 registration.

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Concerning ExxonMobil products, phase 1 registration was carried-out before March 31, 2016. Although we do not expect our fluids, plasticizers or chemical intermediates to be considered as priority chemical substances, we will evaluate the situation when the PEC list is released, end of 2017. Should any phase 2 registration be required for some of our products, we will take appropriate action.

Phase 2 registration: standard registration for priority chemical substances (PECs)

Under the revised TCSCA, PECs are subject to mandatory standard registration. The PEC list will be released at the end of 2017. Registration files will include physicochemical and toxicological data, exposure and assessment data, etc.

Management of Controlled Toxic Chemical Under TCSCA

EPA usually classifies toxic chemical substances in classes 1 to 4 when the toxicological characteristics of chemical substances conform to the toxic chemical substance classification definitions given in the table below:

Categories	Class 1	Class 2	Class 3	Class 4
Definition	Chemical substance that isn't prone to decompose in or pollute the environment or put human health at risk via bioaccumulation, bioconcentration or biotransformation	Chemical substance that causes tumors, infertility, teratogenesis, genetic mutations or other chronic disease	Chemical substance that puts human health at risk or endangers the lives of biological organisms immediately upon exposure	Chemical substance associated with a concern of environmental pollution or endangerment of human health
Management requirements	<ul style="list-style-type: none"> Regularly report records concerning the handling of toxic chemical substances and their release quantities (Article 8) Marking and labeling of containers, packages and preparation/keeping of safety data sheets (Article 17) Handlers shall not sell or transfer them to those that have not obtained a permit, registration or approval (Article 23) 			<ul style="list-style-type: none"> Submission of toxicological information and obtaining an approval prior to handling (Article 7)
	<ul style="list-style-type: none"> May face restriction or prohibition from handling (Article 7) Handlers may apply for the removal of the restrictions or prohibitions (Article 7) Submission of risk prevention and response plans (Article 10) Apply for a permit (by manufacturer or importer), registration (by use or storage company) or approval (usage below than large-scale usage) (Article 13) Employ professional technical management personnel (Article 18) 			

Source: ChemSafetyPro.com

Main differences with EU REACH

- Registration could only be done by a Taiwan Legal Entity. A non-Taiwanese company cannot appoint an Only Representative (OR) based in Taiwan.
- Only substances listed on the PEC list requires full registration (Phase 2).
- All information provided for the registration must be in Chinese.
- The tool used for preparing the data is different from the EU IUCLID tool and a different computer connection is required.
- Registration for Chemical Substances of Unknown or Variable Composition, Complex Reaction Products and Biological Materials (UVCB substances) is not clearly defined. For phase 1 registration, a UVCB substance is accounted for as one substance. However, registration is required for each individual constituent if listed as toxic chemicals when produced, imported, exported, purchased, stored or discarded as a UVCB.
- There is no requirement to include the registration data in the safety data sheets.

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Compare REACH, TCSCA and other similar chemical management programs

To see further similarities and differences between EU REACH, TCSCA and the chemical management programs in force in Turkey and South Korea, [click here](#).

For more information on REACH in Taiwan, please [click here](#).

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Swiss Chemicals Ordinance (or ChemO)

As a non member of the EU or the European Economic Area (EEA), Switzerland has its own chemical regulations, the Swiss Chemicals Ordinance on Protection against Dangerous Substances and Preparations, also called ChemO, originally published in 2005.

On June 5th 2015, Switzerland published a [revised ordinance \(SR 813.11\)](#) that implements classification, labeling and packaging (CLP) and REACH-like registration requirements **for new substances** placed on the Swiss market.

Definition of a “new substance”:

- A substance with an EC number beginning with 4 (European List of Notified Chemical Substances (ELINCS));
- A substance with an EC number 6, 7, 8 or 9 (for intermediates), unless the manufacturer can prove that the identity corresponds to a substance listed in the European Inventory of Existing Commercial Chemical Substances (EINECS).

The ExxonMobil fluids, plasticizers and chemical intermediates commercialized in Switzerland correspond to substances listed in EINECS. They therefore do not have to be notified under ChemO and are not impacted by the revised ordinance.

From 1 July 2015, all new substances imported to or manufactured for the first time in Switzerland in quantities greater than 1 ton/year/legal entity (LE) must be:

- **Notified**, following the same process as the notification process under EU REACH;
- **Registered**, according to the same process as the CLP registration under EU REACH; and/or
- **Declared**, as per the same product and process orientated research and development (PPORD) process under EU REACH

The notifier (manufacturer, importer or sole representative) must have his/her usual residence, registered office or subsidiary in Switzerland.

The information presented is not legal advice, is not to be acted on as such and is subject to change without notice. For more information, please contact your ExxonMobil sales representative.

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Thailand's first existing chemicals inventory

As part of a broad national chemical management plan, Thailand is changing its regulations on chemicals management and is in the process of creating its first existing chemicals inventory.

In 2016, the Department of Industrial Works (DIW) released a preliminary existing chemicals inventory, which is anticipated to be closed in 2017. There are plans for future product incorporation in the inventory but it is unclear when this will happen.

ExxonMobil is following closely these regulatory developments. Our products have been submitted for inclusion in the first list and the agency is still working through their process. We will share information as it is made public during 2017.

Additional Information is available at the Thailand's Food and Drug Administration, Ministry of Health website at this link [here](#).

For more information, please contact your ExxonMobil sales representative.

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Brazil's industrial chemical policy

The Brazilian draft chemicals policy, published by the authorities in 2016, establishes an extensive framework regulating industrial chemicals. This draft policy consists of three major components aimed to minimize adverse impact on health and the environment:

- A registry of chemical products produced in and imported into Brazil;
- A risk assessment process;
- A risk management program to regulate industrial chemicals.

The proposed policy establishes:

- The rules for the registration, evaluation and control of industrial chemicals produced, imported and used in the country;
- Definitions of the kind of products included in and excluded from the application of this law;
- The basis for a national register – the National System for Registration of Industrial Chemicals;
- The formation of a Technical Committee for Industrial Chemicals who will set the criteria for selecting the industrial chemicals to be evaluated;
- The risk management measures to be adopted by the Deliberative Committee for Industrial Chemicals to reduce the risks to health and the environment.

The policy is expected to be published in the Official Gazette in the next few months. ExxonMobil is following the development of this policy and will update its customers on the impact on its products.

For more information, please contact your ExxonMobil sales representative.

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VOC regulations





The topic of VOCs and indoor and outdoor air quality is a very complex matter. There are national and regional regulations in place to reduce polluting emissions and limit the effect of VOCs on people's health and on the environment, we provide here an overview of some of the main ones.

Indoor air quality regulations »

Indoor air quality is a relatively new area, as well as a complex one, and regulators are addressing this topic step by step.

Outdoor air quality regulations »

Regional regulations concerning VOCs and outdoor air quality have been evolving for a longer period of time in the US and in Europe.



Indoor air quality regulations

[Indoor air quality regulations »](#)

[Outdoor air quality regulations »](#)

Due to the multitude of factors that can impact our health in an indoor environment and the multiple combinations of physical, biological, chemical and personal factors that come into play, it is important to address the issue of indoor air quality with an integrated approach.

Furthermore, the general population's exposure to air quality should be considered at two levels:

- Direct, from exposure to volatile products in the workplace or from the use of consumer products at home;
- Indirect, when associated with exposure conditions from professional uses, e.g., the exposure of persons to solvents in a house repainted by professionals.

Because of this complexity, regulators are addressing the topic of indoor air quality gradually, with an objective to reduce the amount of polluting emissions and control air quality.

Main regulations and standards in Europe

- [Construction product regulation: EU 2011/305](#)
It lays down harmonized conditions for the marketing of construction products in Europe.
European Solvents Coordination Group (ES-VOC-CG): [paper on VOCs and indoor air quality](#)
- [ECO-label indoor outdoor paints and varnishes CD 2009/544/EC](#)
It establishes the ecological criteria for the award of the Community eco-label to indoor paints and varnishes.
- [ECO-label indoor outdoor paints and varnishes CD 2009/543/EC](#)
It establishes the ecological criteria for the award of the Community eco-label to outdoor paints and varnishes.

In the U.S. and Asia Pacific, indoor air quality regulations are developing.



Outdoor air quality regulations

In the quest for improved air quality, it has been shown that product-based regulations have far less impact on air quality over facility emission control regulations.

It is important to recognize that not all VOCs are equal as they can vary significantly in their potential to react with NOx and create ground-level ozone. It is more appropriate, therefore, to make choices based on VOC reactivity.

We recommend “low-ozone paints” rather than “low-VOC paints” to better protect the environment and your business.

Here is an overview of the main regulations concerning VOCs – in Europe and the US.

VOC regulations in Europe »

The key regulations are the National Emission Ceilings Directive (NEC) (2001/81/EC), the Industrial Emissions Directive (IED) (2010/75/EU) on industrial emissions and the Paints Directive (2004/42/EC) for paints and varnishes.

VOC regulations in USA »

Some of the main regulations are the Clean Air Act (CAA) of 1970, amended in 1977 and 1990 and the National Ambient Air Quality Standards for ozone.

[Indoor air quality regulations »](#)

[Outdoor air quality regulations »](#)

[VOC regulations in Europe](#)

[VOC regulations in USA](#)



VOC regulations in Europe

In Europe, the three main pieces of VOC regulation are:

- National Emission Ceilings Directive
- Industrial Emissions Directive
- Paints Directive

National Emission Ceilings Directive (NEC)

In the EU, emission reduction targets are established by country in the [National Emissions Ceilings \(NEC\)](#) directive. This directive covers SO₂, NO_x, NH₃, PM_{2.5} and NM-VOCs.

First published in 2000, the NEC Directive set emission reduction targets for 2010. For VOCs, the target was to achieve a reduction of 28% versus the level of emissions in 1990, representing a reduction of 1.1 million tons out of 3.8 million tons in 1990.

Latest NEC Directive review published end 2016

The NEC Directive was recently reviewed and the latest update published in the [Official Journal on December 17, 2016](#):

- The VOC emission reduction target remains at 28% in 2020, meaning that no additional regulations for solvents VOCs are expected in the mid-term in the EU;
- A new VOC emission reduction target is set at 40% in 2030, i.e. 1,5 million tons, with an indicative target of 34% in 2025.

Based on updated inventories, solvent VOCs already achieve the new 2030 target.

Solvent VOC emissions already achieve the new target when using updated inventories. The regulatory authorities are still using original inventories developed in the 1990's to set current and future targets. In the case of solvents, the inventories are based on the use of 1 ton of solvents per year and per capita. This data is now considered to be overestimated by 30% and should be revised before the next emission target is set. The industry is working closely with the authorities to correct the base line against which future emissions targets should be set.

No impact on ExxonMobil products

The revised Directive has no impact on ExxonMobil fluids since the industry's efforts have achieved a level of solvent VOC reduction that exceeds the target set for 2020 and equals the new 2030 target when using the updated inventories.

The industry position

The [European Solvent Industry Group \(ESIG\)](#) welcomes the NEC revisions and supports the proposed emission reduction targets for VOCs for 2020. The European solvents industry has shown continuous commitment to improve air quality by reducing VOC emissions from solvents by more than 60% since 1990. Longer term emission reduction targets, however, should be based on comprehensive assessments of the environmental, health and economic impacts on all sectors. ESIG has been working and will keep working with EU institutions to improve air quality and to find viable solutions that benefit the environment while preserving the competitiveness of the European solvents industry:

[Indoor air quality regulations »](#)

[Outdoor air quality regulations »](#)

[VOC regulations in Europe](#)

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- [Ozone modeling developed by ESIG](#) jointly with INERIS (Institut National de l'environnement et des risques) and TNO (Netherlands Organization for Applied Scientific Research) demonstrates that further solvent reduction will not result in further ozone reduction.
- [ESIG's analysis of inventory of solvent emissions](#) indicates that inventory regulators were over-estimating projected VOC emissions by 30%.
- [ESIG's VOC emissions inventories paper](#) presents its methodology for a more accurate calculation of Volatile Organic Compounds (VOCs) emissions from solvents.
- [EMEP/EEA air pollutant emission inventory guidebook 2016](#), Technical guidance to prepare national emission inventories: provides guidance to EU Member States on how to report their emission data to the European Commission using, for the first time, the methodology recommended by the solvent industry. This will enable the European Commission to update its old data inventories.

Next step

1 July 2018: deadline for Member States to transpose the directive into national law (i.e. 18 months after the Directive's entry into force).

For further information, please contact your ExxonMobil sales representative.

Industrial Emissions Directive (IED)

The IED is the main EU instrument regulating pollutant emissions from industrial installations. The IED was adopted November 24, 2010 to replace seven previously existing directives, including former Integrated Pollution Prevention and Control Directive and VOC Solvents Emissions Directive. IED entered into force on January 6, 2011 and had to be transposed by Member States by January 2013.

Operators of industrial installations covered by the IED are required to obtain an authorization (environmental permit) from the authorities in the EU countries. The permit takes into account all environmental impacts including emissions to air, water and land, energy consumption, waste, etc. Permit conditions are based on Best Available Techniques defined for each sector. About 50,000 installations are covered by the IED.

The IED contains a separate chapter for installations and activities using organic solvents. It covers a wide range of solvent using activities, e.g., printing, surface cleaning, vehicle coating, dry cleaning and manufacture of footwear and pharmaceutical products.

- It requires installations in which such activities are applied to comply either with the emission limit values set out in the Directive or with the requirements of the so-called reduction scheme.
- Additionally, it sets out emission limit values for VOCs in waste gases and maximum levels for fugitive emissions (expressed as percentage of solvent input) or total emission limit values.
- The purpose of the reduction scheme is to allow the operator the possibility to achieve by other means emission reductions, equivalent to those achieved if the emission limit values were to be applied. This could be typically achieved by substituting products with a high content of solvents for low-solvent or solvent-free products and changing to solvent-free production processes. New installations have to comply with the IED requirements at the time they start their activity.

The Paints Directive or Directive on the limitation of VOC content in certain paints and varnishes

The [Paints Directive](#) sets the VOC content limits for paints and varnishes (essentially building paints and vehicle refinishing products). It is the first European "product directive" that controls VOC content in products rather than associated emissions. Limits came into force in two phases (2007 and 2010).



- Indoor air quality regulations »
- Outdoor air quality regulations »
- VOC regulations in Europe
- VOC regulations in USA

Even though the former IPPC and SED regulations (now IED) contributed to the reduction of ground-level ozone, the Paints Directive was not as effective according to an ESIG study carried out in 2006. This study demonstrated that installation-related regulations are more efficient, and the best way to reduce ozone versus product-related regulation.

The [study commissioned by ESIG](#) also concluded that further VOC emissions reduction will not deliver significant ozone reduction.

The Paints Directive, which encourages conversion to heavier solvents, such as Exxsol™ D120 or water-based solvents, is ineffective in reducing ozone given the results of the 2006 ESIG study. Nevertheless, ExxonMobil offers a range of non-VOC fluids that comply with the Solvent Emission Ceilings Directive and the Paints Directive:

Performance fluids at 20°C (EU)

Product (*)	Vapor pressure (kPa)	Initial boiling point C°	VOC status according to SED	VOC status according to the Paints Directive
Dearomatized				
Exxsol™ D220/240	0.009*	223	Non-VOC	VOC
Exxsol D100 ULA	0.004*	236	Non-VOC	VOC
Exxsol D120	0.001*	254	Non-VOC	Non-VOC
Exxsol D140	<0.001*	277	Non-VOC	Non-VOC
Isoparaffins				
Isopar™ N	0.005*	223	Non-VOC	VOC
Isopar V	<0.001	269	Non-VOC	Non-VOC
Non-dearomatized				
Varsol™ 120	0.001*	257	Non-VOC	Non-VOC
Aromatics				
Solvesso™ 200ND	0.001*	247	Non-VOC	VOC
Solvesso 200	0.003*	237	Non-VOC	VOC

*calculated with ExxonMobil computer model – ESIG tool

Please refer to our fact sheet providing the **VOC status** of all ExxonMobil fluids in Europe.

In Austria and Switzerland

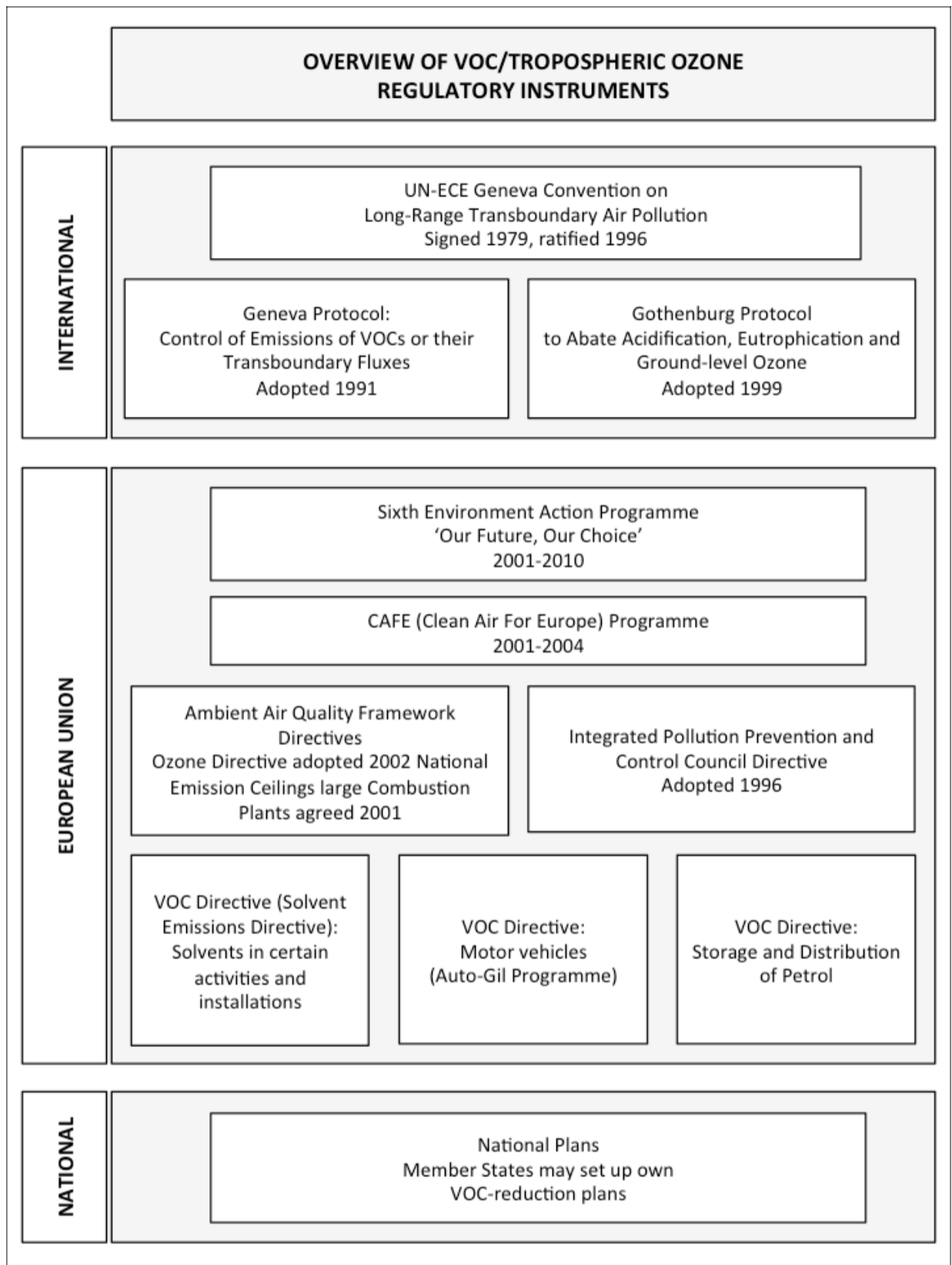
Austria calls for a maximum boiling point of 200°C in its “1995 Solvents Ordinance” limiting organic solvents in a number of applications whereas Switzerland in their “VOC Ordinance” has implemented a tax scheme where VOCs refer to organic compounds with a maximum boiling point of 240°C.

For further information, consult the [European Eco-Labeling scheme \(2002/739/EC amending 1999/10/EC\) for paints and varnishes](#).

See also: [The ESIG vapor pressure tool: an industry standard to help assess whether hydrocarbon solvents are VOCs](#)



Summary of the main regulatory instrument related to VOCs/tropospheric ozone in the EU



- Indoor air quality regulations »
- Outdoor air quality regulations »
- VOC regulations in Europe
- VOC regulations in USA



Instrument	Geographical scope	Dates
UN-ECE Geneva Convention on long-range transboundary air pollution	International	Signed November 1979 Ratified by 40 countries June 1996
UN-ECE Geneva protocol concerning the control of emissions of VOCs or their transboundary fluxes	International	Adopted 1991. Signed by 22 countries and the EU
UN-ECE Gothenburg Protocol to abate acidification, eutrophication and ground level ozone	International	Adopted 1999
Fifth Environmental Action Programme "Towards Sustainability"	European Union	Programme ran from 1992-2000
Council Directive on Integrated Pollution Prevention and Control	European Union	Adopted in 1996
Environment Council Framework Directive on ambient air quality assessment and management	European Union	Adopted in 1996
Directive of the European Parliament and of the council relating to ozone in ambient air	European Union	Adopted in 2002
Directive of the European Parliament and of the council on national emission ceilings for certain atmospheric pollutants	European Union	Adopted in 2001
Directive of the European Parliament and Council relating to measures to be taken against air pollution by emissions from motor vehicles and Amending Directives 70/220/EEC and 70/156/EEC	European Union	Adopted in 1996
Council Directive on the control of VOC emissions resulting from the storage of petrol and its distribution from terminals to service stations	European Union	Adopted in 1994
Council Directive on the limitation of emissions of organic compounds due to the use of organic solvents in certain processes and industrial installations	European Union	Adopted in 1999
Sixth Environmental Action Programme "Our Future, our Choice"	European Union	Programme ran until 2010
The Clean Air for Europe Programme	European Union	2001-2005
Directive of the European Parliament and of the Council on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products	European Union	Adopted in April 2004

- [Indoor air quality regulations »](#)
- [Outdoor air quality regulations »](#)
- [VOC regulations in Europe](#)
- [VOC regulations in USA](#)



VOC regulations in USA

In the USA, the key pieces of regulation are at national level. However, some states do incorporate their own legislation.

Clean Air Act (CAA) of 1970, amended in 1977 and 1990

In the United States, VOC controls in air are set out in the [Clean Air Act \(CAA\)](#) of 1970, amended in 1977 and 1990. The goal of the CAA is to reduce VOC emissions and implement abatement strategies for regions where ozone levels are high. Such strategies include reduction of automobile use, VOC emission reduction, and seasonal shifts to reformulated gasoline with high oxygenate concentrations. Currently the Clean Air Act mandates that MACT (Maximum Achievable Control Technology) should be used to help ensure attainment of the required ozone air quality standards. Human health risk assessments are to be performed on the remaining VOC emissions by the US Environmental Protection Agency (EPA). Results of these risk assessments could stimulate further regulatory action.

It should be noted that the US has taken primarily an EQO/EQS approach and is applying MACT where this is required. This approach helps to ensure the most effective use of resources.

National Ambient Air Quality Standards for ozone

The US has also set [National Ambient Air Quality Standards for ozone](#). The current standard for both human health (primary standard) and ecological endpoints (secondary standard) is set at the level of 0.070 ppm for an 8-hour averaging time, with a form as an annual fourth highest daily maximum 8-hour concentration averaged over three years.

At the Federal level, the US EPA currently uses ethane as a benchmark for VOC exemptions based on reactivity considerations. The state of California has incorporated MIR into aerosol coatings regulations.

Low vapor pressure (lvp) fluid options for consumer products

Concerns around air quality and ozone continue to drive consumer product formulation decisions. In order to help our customers meet the ever-changing regulations, ExxonMobil markets several LVP-VOC fluids for consumer product applications that meet the low vapor pressure requirement defined by the California Air Resources Board (CARB) and the U.S. EPA as:

- Having a vapor pressure of less than 0.1 mm Hg at 20° C, or
- Consists of more than 12 carbon atoms, if the vapor pressure is unknown,
- Boils or distills >216° C (this additional criterion is included in CARB's regulation)

Product (*)	CAS number	Compliance with LVP Criteria
Exxsol™ D 95 fluid	64742-47-8	100%
Exxsol D 110 fluid	64742-47-8	100%
Exxsol D 130 fluid	64742-46-7	100%
Isopar™ M fluid	64742-47-8	100%
Isopar V fluid	64742-46-7	100%
Aromatic 200 / ND / ULN	64742-94-5	100%

For additional information see: [National Volatile Organic Compound Emission Standards for Consumer Products](#), or **contact your sales representative or your distributor.**

- Indoor air quality regulations »
- Outdoor air quality regulations »
- VOC regulations in Europe
- VOC regulations in USA



Transport regulations





The transport of hazardous goods is regulated both at international and national levels. The modal regulations come from the [Recommendations on the Transport of Dangerous Goods \(TDG\)](#), developed by the United Nations Committee of Experts on the Transport of Dangerous Goods and within GHS, the Globally Harmonized System of Classification and Labeling of Chemicals. Their objective is to ensure a high level of communication to assist in minimizing accidents and injury to people, damage to property and the environment during transportation.

They include provisions for classification, packaging, labeling/placarding & marking and preparation of transport documents. They create a uniform regulatory framework for all modes of transport (road, rail, inland waters, sea and/or air, sometimes by containers such as drums, intermediate bulk containers, etc). Highly dangerous and unstable substances are highly regulated and can be prohibited from transport.

UN Dangerous Goods Transport Recommendations »

The global system for classifying dangerous goods is based on the UN Recommendations on the Transport of Dangerous Goods.

International transport regulations »

The main international regulations for the transport of dangerous goods (TDG) cover air, sea (in packaged form), road, rail and inland waterways transport.

Transport regulations in Europe »

The transport of dangerous goods across borders in Europe is regulated by international agreements on the different modes of transport.

Transport in North America »

The transport of dangerous goods in the USA is regulated by Chapter 49 of the United States Code of Federal Regulations (49 CFR).

Transport in Asia Pacific »

In Asia Pacific, transport regulations follow by and large the international conventions and the European and US regulations.



UN Dangerous Goods Transport Recommendations

The transport of dangerous goods (DGs) is regulated both at international and national levels.

The U.N. Recommendations concerning the transport of dangerous goods – commonly called “Orange Book” – are presented in the form of “Model Regulations,” developed by the United Nations Committee of Experts on the Transport of Dangerous Goods. The objective of these recommendations is to prevent accidents to persons or property and damage to the environment during transportation. They are updated every two years.

The recommendations cover principles of classification and definition of classes, listing of the principal dangerous goods, general packaging requirements, testing procedures, labeling/placarding and marking, and preparation of transport documents. They create a uniform regulatory international framework for all modes of transport (road, rail, inland waters, sea in packaged form and air). They do not apply to the bulk transport of dangerous goods in sea-going or inland navigation bulk carriers or tank-vessels (which is subject to MARPOL Convention).

Highly dangerous and unstable substances are controlled under these regulations. They can be forbidden from transportation if any material which is presented for shipment could explode, dangerously react, produce a flame or dangerous evolution of heat, or produce a dangerous emission of toxic, corrosive or flammable gases or vapors under normal conditions of transport.

Wastes should be transported according to the appropriate class requirements as defined by their hazards and the criteria defined in the U.N. Model Regulations. Wastes not otherwise subject to the U.N. Model Regulations but covered under the [Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal](#) may be transported under Class 9 (entries UN3082 and UN3077).

Hazard identification and classification

The U.N. recommendations define specific information to communicate the identity of a product and its potential hazard(s) while in transport and include, for example:

- UN number
- proper shipping name
- hazard class
- packaging group

Transport classification of ExxonMobil fluids in Europe.

Hazard classes and packing groups »

The UN recommendations define specific information to communicate the identity of a product and its potential hazard(s) while in transport.

UN numbers and shipping names »

UN numbers and proper shipping names are assigned to dangerous goods according to their hazard classification and their composition.

[UN Dangerous Goods Transport Recommendations »](#)

[Hazard classes and packing groups](#)

[UN numbers and shipping names](#)

[International transport regulations »](#)

[Transport regulations in Europe »](#)

[Transport in North America »](#)

[Transport in Asia Pacific »](#)



Hazard classes and packing groups

As part of the classification process, dangerous goods (DGs) are classified by type of hazard and the hazard they represent using physical/chemical properties as well as mammalian and environmental information.

- **Class 1:** Explosives
- **Class 2:** Gases
- **Class 3:** Flammable liquids
- **Class 4:** Flammable solids, substances that could spontaneously combust, and substances which, on contact with water, emit flammable gases
- **Class 5:** Oxidizing substances and organic peroxides
- **Class 6:** Toxic and infectious substances
- **Class 7:** Radioactive material
- **Class 8:** Corrosive substances
- **Class 9:** Miscellaneous dangerous substances and articles, including environmental hazardous substances

Once a product has been assigned a hazard class, it will then be assigned to a packing group (PG) in accordance with the degree of danger it presents. Exceptions are made for those materials covered under Class 1, 2 and 7, divisions 5.2 and 6.2 and other than self-reactive substances of Division 4.1 (criteria largely conform to those set out in GHS).

- **Packing group I:** Substances presenting high danger
- **Packing group II:** Substances presenting medium danger
- **Packing group III:** Substances presenting low danger

ExxonMobil Chemical fluids, plasticizers and chemical intermediates, when classified as a dangerous good, are predominantly classified as hazard class 2, 3 or 9:

- **Class 2** corresponds to gases which at 50°C (122°F) has a vapor pressure (VP)>300 kPa or it is completely gaseous at 20°C (68°F) at a standard pressure of 101.3 kPa.
- **Class 3** groups together all flammable liquids. In general, products which create a flammable vapor at temperatures of not more than 60°C (140°F) in closed-cup tests, or not more than 65°C (149°F) in open-cup test, normally referred to as the flash point (FP), are considered flammable liquids (in most regulatory schemes).
- **Class 9** corresponds to miscellaneous dangerous substances and articles, including elevated temperature substances and environmentally hazardous substances (Aquatic environment).

Environmental hazardous substances

Environmental hazardous substances (EHS) include solid or liquid substances, solutions or mixtures that are harmful to the aquatic environment. The basic elements for classification of such substances are:

- Acute aquatic toxicity;
- Chronic aquatic toxicity;
- Potential for or actual bioaccumulation; and
- Degradation (biotic or abiotic) for organic chemicals.

[UN Dangerous Goods Transport Recommendations »](#)

[Hazard classes and packing groups](#)

[UN numbers and shipping names](#)

[International transport regulations »](#)

[Transport regulations in Europe »](#)

[Transport in North America »](#)

[Transport in Asia Pacific »](#)



Additionally, when substances and articles are shipped by road (ADR Code) and by inland waterways (ADN), they are assigned a specific Classification Code according to their hazardous properties. For example:

Class 3:

- F - Flammable liquids, without subsidiary risk and articles containing such substances:
- F1 - Flammable liquids having a FP $\leq 60^{\circ}\text{C}$;
- F2 - Flammable liquids having a FP $> 60^{\circ}\text{C}$ which are carried or handled over for carriage at or above their FP (elevated temperature substances)
- F3 - Articles containing flammable liquids.

Class 9:

- M1 - Substances which, on inhalation as fine dust, may endanger health;
- M6-M8 - Environmentally Hazardous Substances (EHS):
- M6 - Pollutant to the aquatic environment, liquid;
- M7 - Pollutant to the aquatic environment, solid;
- M8 - Genetically modified microorganisms and organisms;

For more information on classes and packing groups, please [click here](#).

UN Dangerous Goods Transport Recommendations »

Hazard classes and packing groups

UN numbers and shipping names

International transport regulations »

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UN numbers and shipping names

UN numbers and shipping names are assigned to dangerous goods according to their hazard classification and their composition and are listed under the Dangerous Goods List (DGL) in Chapter 3.2.

There are four types of shipping names (i.e., entries) in the DGL:

- Single entries for well-defined substances or articles, e.g., (UN1090) ACETONE
- Generic entries for well-defined groups of substances or articles, e.g., (UN1133) ADHESIVES
- Specific n.o.s. (not otherwise specified) entries covering a group of substances or articles of a particular chemical or technical nature, e.g., (UN1987) ALCOHOLS, n.o.s.
- General n.o.s. entries covering a group of substances or articles meeting the criteria of one or more classes or divisions, e.g., (UN1993) FLAMMABLE LIQUIDS, n.o.s.

When there are a number of possible names (entries) for a product, the most specific entry identifying the substance(s) as well as covering the properties of the substance or article is used.

When a generic family or general name is used, a technical or chemical group name will also be used in the shipping name (e.g., FLAMMABLE LIQUIDS, n.o.s. (pentane)) unless a national law or international convention prohibits its disclosure if it is a controlled substance. Technical and chemical group names must be entered in brackets immediately following the proper shipping name.

For more information on UN numbers and shipping names, please [click here](#).

UN Dangerous Goods Transport Recommendations »

Hazard classes and packing groups

UN numbers and shipping names

International transport regulations »

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International transport regulations

The main international regulations for the transport of dangerous goods (TDG) cover air, sea (in packaged form), road, rail and inland waterways transport. All, except MARPOL and the IBC Code, are defined by the U.N. recommendations on TDG.

- **Air transport:** the international IATA Code
- **Sea transport in packaged form:** the international IMDG Code
- **Sea transport for goods in bulk:** MARPOL and IBC Code
- **Inland waterways transport:** ADN Code (EU Agreement) and 49 CFR (US DOT)
- **Road transport:** ADR Code (EU Agreement) and 49 CFR (US DOT)
- **Rail transport:** RID Code (EU Agreement) and 49 CFR (US DOT)

Air transport: the international IATA Code »

Transport by air is regulated worldwide by conventions of the International Civil Aviation Organization (ICAO).

Sea transport in packaged form: the international IMDG Code »

Transport of packaged goods by sea is regulated worldwide by conventions of the International Maritime Organization (IMO) under the UN.

Sea transport for goods in bulk: MARPOL and IBC Code »

Chemicals shipped in bulk shape in seagoing tankers are regulated for their safety and/or pollution hazards based on the IBC-code.

Inland waterways transport: ADN Code (EU Agreement) and 49 CFR (US DOT) »

The applicable regulation is the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN).

Road transport: ADR Code (EU Agreement) and 49 CFR (US DOT) »

Transport by road in Europe has a regional nature and comes under the auspices of UNECE.

Rail transport: RID »

The Intergovernmental OCTI/OTIF is responsible for transport by rail as well as for the regulations concerning the international carriage of dangerous goods by rail.

UN Dangerous Goods Transport Recommendations »

International transport regulations »

Air transport: the international IATA Code

Sea transport in packaged form: the international IMDG Code

Sea transport for goods in bulk: MARPOL and IBC Code

Inland waterways transport: ADN Code (EU Agreement) and 49 CFR (US DOT)

Road transport: ADR Code (EU Agreement) and 49 CFR (US DOT)

Rail transport: RID

Transport regulations in Europe »

Transport in North America »

Transport in Asia Pacific »

Air transport: the international IATA Code

Transport by air is regulated worldwide by conventions of the International Civil Aviation Organization (ICAO).

The [ICAO](#) Technical Instructions (ICAO-TI) are the authentic legal source material.

The International Air Transport Association Dangerous Goods Regulations ([IATA-DGR](#)) is the easy-to-use “field manual” version based on the ICAO-TI.

- [UN Dangerous Goods Transport Recommendations »](#)
- [International transport regulations »](#)
 - [Air transport: the international IATA Code](#)
 - [Sea transport in packaged form: the international IMDG Code](#)
 - [Sea transport for goods in bulk: MARPOL and IBC Code](#)
 - [Inland waterways transport: ADN Code \(EU Agreement\) and 49 CFR \(US DOT\)](#)
 - [Road transport: ADR Code \(EU Agreement\) and 49 CFR \(US DOT\)](#)
 - [Rail transport: RID](#)
- [Transport regulations in Europe »](#)
- [Transport in North America »](#)
- [Transport in Asia Pacific »](#)



Sea transport in packaged form: the international IMDG Code

The International Maritime Organization (IMO) is a U.N. agency which has developed two international conventions to address issues on safety of life at sea (SOLAS) and marine pollution (MARPOL).

It also developed the [International Maritime Dangerous Goods \(IMDG\) Code](#) which regulates worldwide the carriage by sea of dangerous goods in “packaged form”, which includes any form of packaging, intermediate bulk containers (IBC), portable tanks, or road and rail vehicle containers, in ships other than tankers (e.g., bulk marine).

[UN Dangerous Goods Transport Recommendations »](#)

[International transport regulations »](#)

[Air transport: the international IATA Code](#)

[Sea transport in packaged form: the international IMDG Code](#)

[Sea transport for goods in bulk: MARPOL and IBC Code](#)

[Inland waterways transport: ADN Code \(EU Agreement\) and 49 CFR \(US DOT\)](#)

[Road transport: ADR Code \(EU Agreement\) and 49 CFR \(US DOT\)](#)

[Rail transport: RID](#)

[Transport regulations in Europe »](#)

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Sea transport for goods in bulk: MARPOL and IBC Code

The categorization of chemicals for shipment in bulk by sea does not follow the U.N. Model Recommendations (Orange Book). Chemicals shipped in sea-going tankers are regulated under MARPOL Convention and IBC Code.

The criteria defining safety hazards to the ship and crew are somewhat different from those of other regulations. They are typical of [MARPOL 73/78 Annex II](#), the International Convention for the Prevention of Pollution from Ships of 1973, modified by the protocol of 1978. It defines four categories of pollution, from the most severe (X) to the mildest (Z) and the category OS (Other Substances) which lists those chemicals not posing a pollution hazard.

IBC Code is the international code for the construction and equipment of ships carrying dangerous goods in bulk. This code is regularly amended to contain the revisions of MARPOL Annex II which include the pollution categorization system and criteria for assigning products to the appropriate category, and the revision of stripping requirements and discharge criteria. Those products revised and evaluated are included in Chapter 17 or 18 as appropriate.

The IBC Code assigns to each entry a set of minimum carriage conditions, covering the pollution category, ship and tank type (e.g., single or double containment), tank environmental control, gauging devices, fire-fighting media, electrical requirements, etc. Reference is also made in this Code to the MEPC.2/Circulars issued annually in December.

MEPC.2/Circulars are published by IMO to cover details of products that have been the subject of Tripartite Agreement (for bulk marine shipments) and are, in effect, a supplement to the IBC Code during the interim period before the entry into force of the relevant amendments of the Code.

A future amendment, shown in the Circular, serves as prior notice of the carriage conditions which will only apply to that product when the next amendment of the Code enters into force.

MARPOL Annex II classification is legally required on section 14 of the SDS.

For further information on MARPOL and the IBC Code, [click here](#).

[UN Dangerous Goods Transport Recommendations »](#)

[International transport regulations »](#)

Air transport: the international IATA Code

Sea transport in packaged form: the international IMDG Code

Sea transport for goods in bulk: MARPOL and IBC Code

Inland waterways transport: ADN Code (EU Agreement) and 49 CFR (US DOT)

Road transport: ADR Code (EU Agreement) and 49 CFR (US DOT)

Rail transport: RID

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[Transport in Asia Pacific »](#)



Inland waterways transport: ADN Code (EU Agreement) and 49 CFR (US DOT)

The applicable regulation is the [European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways](#) (ADN) under the auspices of the United Nations Economic Commission for Europe (UNECE) and the Central for Navigation on the Rhine (CCNR).

The regulation contains provisions concerning the international carriage of dangerous goods in packages and in bulk on board inland navigation vessels or tank vessels, as well as provisions to the construction and operation of such vessels. It also addresses requirements and procedures for inspections, certificates of approval, monitoring, training and examination of experts.

[UN Dangerous Goods Transport Recommendations »](#)

[International transport regulations »](#)

Air transport: the international IATA Code

Sea transport in packaged form: the international IMDG Code

Sea transport for goods in bulk: MARPOL and IBC Code

Inland waterways transport: ADN Code (EU Agreement) and 49 CFR (US DOT)

Road transport: ADR Code (EU Agreement) and 49 CFR (US DOT)

Rail transport: RID

[Transport regulations in Europe »](#)

[Transport in North America »](#)

[Transport in Asia Pacific »](#)

Road transport: ADR Code (EU Agreement) and 49 CFR (US DOT)

Transport by road has a more regional nature in Europe and comes under the auspices of the Economic Commission for Europe of the United Nations (UNECE).

UNECE issues the ADR, short for the [European Agreement concerning the International Carriage of Dangerous Goods by Road](#).

These codes regulate the carriage of dangerous goods in packages and/or cargo transport units (freight or tank containers/vehicles) in more than forty, mostly European, countries.

[UN Dangerous Goods Transport Recommendations »](#)

[International transport regulations »](#)

Air transport: the international IATA Code

Sea transport in packaged form: the international IMDG Code

Sea transport for goods in bulk: MARPOL and IBC Code

Inland waterways transport: ADN Code (EU Agreement) and 49 CFR (US DOT)

Road transport: ADR Code (EU Agreement) and 49 CFR (US DOT)

Rail transport: RID

[Transport regulations in Europe »](#)

[Transport in North America »](#)

[Transport in Asia Pacific »](#)

Rail transport: RID

The Intergovernmental Organization for International Carriage by Rail ([OCTI/OTIF](#)) is responsible for transport by rail as well as for the regulations concerning the international carriage of dangerous goods by rail (RID). These regulations provide a frame for the carriage of dangerous goods in packages and/or cargo transport units (freight or tank containers/vehicles) in many countries, mostly European.

[UN Dangerous Goods Transport Recommendations »](#)

[International transport regulations »](#)

Air transport: the international IATA Code

Sea transport in packaged form: the international IMDG Code

Sea transport for goods in bulk: MARPOL and IBC Code

Inland waterways transport: ADN Code (EU Agreement) and 49 CFR (US DOT)

Road transport: ADR Code (EU Agreement) and 49 CFR (US DOT)

Rail transport: RID

[Transport regulations in Europe »](#)

[Transport in North America »](#)

[Transport in Asia Pacific »](#)



Transport regulations in Europe

The transport of dangerous goods across borders in Europe is regulated by international agreements on the different modes of transport (by road, rail, inland waters, sea and/or air) as developed by the [U.N. recommendation on the Transport of Dangerous Goods](#) or by [MARPOL](#).

National laws regulate the transport inside the territory of a country. The domestic regulations in each European country have progressively converged towards the corresponding international ones. The European agreements concerning carriage by road ([ADR](#)), and inland waters ([ADN](#)), and rail ([RID](#)) apply within and between member states of the EU.

[UN Dangerous Goods Transport Recommendations »](#)

[International transport regulations »](#)

[Transport regulations in Europe »](#)

[Transport in North America »](#)

[Transport in Asia Pacific »](#)



Transport in North America

The transport of dangerous goods in the USA is regulated by Title 49 of the United States Code of Federal Regulations (49 CFR). Each mode of transport (by road, rail, inland waters, sea and air) is regulated under 49 CFR and enforced by the [US Department of Transportation](#) (US DOT).

International laws (i.e., IATA (Air) and IMDG (Ocean)) regulate the transport outside the territory of the country. These regulations have continued to become aligned with the revisions in the [Orange Book](#) and additionally allow for the utilization of international regulations when multi-modal transportation activities occur.

Shipments to and from the USA and Canada

A reciprocal agreement is in place for international shipments between the USA and Canada. Hazardous materials (a.k.a. dangerous goods) may be shipped by rail or highway into either country under most of the originating country's regulations. There may be additional requirements in place for compliance within each country depending upon the mode and the material.

Shipments to and from the USA and Mexico

Shipments to or from Mexico will normally align and comply with all applicable requirements of 49 CFR. There may be additional requirements for shipments transported by rail or highway of certain hazardous substances (e.g., substances that are poisonous by inhalation).

[UN Dangerous Goods Transport Recommendations »](#)

[International transport regulations »](#)

[Transport regulations in Europe »](#)

[Transport in North America »](#)

[Transport in Asia Pacific »](#)



Transport in Asia Pacific

In Asia Pacific, the land transport of dangerous goods follows the same transport classification criteria as in Europe.

For sea transport of products in package form and air transport, Asia Pacific countries apply the international transportation regulations [IMDG](#) and [IATA](#) respectively, as in Europe and the Americas.

For sea transport of liquids chemicals in bulk, [IBC Code](#) and [MARPOL Annex II](#) (as chemicals) are applied – as in Europe – but in the case of some chemicals, Asia Pacific countries follow and adopt the criteria and classification recommended by the US Coast Guard (USCG) under [MARPOL Annex I](#) (as oils).

[UN Dangerous Goods Transport Recommendations »](#)

[International transport regulations »](#)

[Transport regulations in Europe »](#)

[Transport in North America »](#)

[Transport in Asia Pacific »](#)



Food contact regulations





Food contact regulations will apply in the event that ExxonMobil Chemical fluids, plasticizers and chemical intermediates are used in applications where the product can result in food contact. For fluids, such applications can include coatings, paints, metal working, polymer processing, printing and packaging. For plasticizers, they can include PVC packaging, conveyor belts or sealing gaskets.

Compliance with regulatory systems, guidelines and Good Manufacturing Practices (GMP) ensures that safe use of chemicals in food contact is preserved. Most of these systems rely on general safety requirements, positive and/or negative lists, extraction or migration criteria to control the level of transfer into food. Acceptable levels are usually derived from a combination of toxicological safety assessment and exposure estimates.

Determination of food contact material compliance should consider numerous factors, beginning with the composition, the food type intended to be contacted and conditions of use in relationship with applicable requirements. These systems may have a strong regulatory component (USA and EU), while others can be in the form of guidance (Japan), non-objection letters from authorities (Canada). Rapid regulatory developments are taking place, in particular in Asia.

Our fluid and plasticizer portfolio includes products that comply with GMP standards applied to food contact.

European food contact legislation »

In Europe, the prevailing legal system covering food contact consists of several EU regulations. The current framework is Regulation (EC) No 1935/2004.

US food contact legislation »

The USA approach to regulating food contact materials and food additives relies on the FDA and the Federal Food, Drug and Cosmetic Act (FFDCA).

Food contact regulations in Asia »

The Food Safety Law of the People's Republic of China governs all issues involving food quality and food safety in the PRC. In Taiwan, it is the Food and Drug Administration (FDA).



European food contact legislation

In Europe, the prevailing legal system covering food contact consists of several EU regulations. Since the early 1970s, the Commission of the European Communities has been active in the area of harmonization of the laws of the Member States on food contact materials and articles. The current framework is [Regulation \(EC\) No 1935/2004](#).

The legal system currently encompasses:

- The Framework regulation that covers all food contact materials and articles
- The Good Manufacturing Practice regulation
- Legislation on specific materials at EU and national level

Harmonization of food contact regulations in the EU is only partial, even for the most advanced area of plastics materials and articles:

- Specific national food contact regulations and basic legal principles of the individual EU Member States still (and will continue to) prevail.
- Consideration of the free movement of goods following mutual recognition under Article 28 of the EC Treaty may also be relevant.

EU Member States laws »

Member States laws remain applicable for areas and materials not yet covered by the EU food contact specific measures.

EC Framework Regulation (EC) No 1935/2004 »

This Framework regulation establishes the fundamental regulatory requirements for all materials or articles intended to come into contact with food.

Regulation (EC) No 2023/2006 on Good Manufacturing Practice for materials and articles intended to come into contact with food »

It prescribes the requirements conducive to a Good Manufacturing Practice (GMP) system for materials and articles intended to come into contact with food.

Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food »

The "new" Plastics regulation is a specific measure within the meaning of Article 5 of Regulation (EC) No 1935/2004 with respect to plastics in food contact.

Directive 2009/32/EC on extraction solvents used in the production of foodstuffs and food ingredients »

Within the EU, significant regulatory coverage - both EU and national - exists for food and food additives.

ExxonMobil fluids and plasticizers for food contact in Europe »

Update on the food contact regulatory status of our fluids and plasticizers in Europe.

European food contact legislation »

EU Member States laws

EC Framework Regulation (EC) No 1935/2004

Regulation (EC) No 2023/2006 on Good Manufacturing Practice for materials and articles intended to come into contact with food

Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food

Directive 2009/32/EC on extraction solvents used in the production of food-stuffs and food ingredients

ExxonMobil fluids and plasticizers for food contact in Europe

US food contact legislation »

Food contact regulations in Asia »



EU Member States laws

Member States laws and recommendations remain applicable for areas not yet covered by the EU food contact specific measures or for groups of materials not yet covered by a specific measure (e.g., rubber, printing inks).

However, there are several countries where no food contact legislation other than the European one exists. For these countries, compliance of the food contact article with Regulation (EC) No 1935/2004 is applicable.

As a result of the implementation of the Regulation (EU) No 10/2011, several national regulations are being revised. It is advised to consult the latest update of the law/recommendation to draw conclusions on the regulatory status of materials/articles, substances or products at intermediate stage.

For further information about national regulations in Europe, [click here](#).

European food contact legislation »

EU Member States laws

EC Framework Regulation (EC) No 1935/2004

Regulation (EC) No 2023/2006 on Good Manufacturing Practice for materials and articles intended to come into contact with food

Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food

Directive 2009/32/EC on extraction solvents used in the production of food-stuffs and food ingredients

ExxonMobil fluids and plasticizers for food contact in Europe

US food contact legislation »

Food contact regulations in Asia »



EC Framework Regulation (EC) No 1935/2004

The [EC Framework Regulation \(EC\) No 1935/2004](#) establishes the fundamental regulatory requirements for all materials or articles intended to come into contact with food.

Article 3 covers manufacturing in compliance with [GMP](#) so that, under normal or foreseeable conditions of use, materials and articles do not transfer their constituents to food in quantities which could:

- Endanger human health
- Bring about an unacceptable change in the composition of the food
- Bring about deterioration in the food organoleptic characteristics.

Annex I of the regulation displays a list of materials and articles which may be covered by specific measures. For example:

- Adhesives
- Plastics
- Printing inks
- Varnishes and coatings

At the EU level, most developments have taken place in the area of plastics and a few other groups of materials. Specific regulations have yet to be established for the other materials. Article 5 of this regulation lists items that may be included in specific measures for groups of materials and articles. For example:

- A list of substances authorized for use in the manufacturing of materials and articles
- Purity standards for authorized substances
- Special conditions of use for authorized substances and/or the materials and articles in which they are used
- An overall limit on the migration of constituents into or onto food
- Specific limits on the migration of certain constituents or groups of constituents into or onto food

The regulation also imposes declarations of compliance to be supported by appropriate documentation to be made available to authorities upon request. It clarifies and expands some of the labeling and traceability requirements of the directive (traceability is required at all stages of manufacture, processing and distribution).

It also explicitly imposes on Member States the obligation to carry out official controls in order to enforce compliance and to lay down the rules on sanctions applicable to infringements of the provisions of the regulation.

European food contact legislation »

EU Member States laws

EC Framework Regulation (EC) No 1935/2004

Regulation (EC) No 2023/2006 on Good Manufacturing Practice for materials and articles intended to come into contact with food

Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food

Directive 2009/32/EC on extraction solvents used in the production of food-stuffs and food ingredients

ExxonMobil fluids and plasticizers for food contact in Europe

US food contact legislation »

Food contact regulations in Asia »



Regulation (EC) No 2023/2006 on Good Manufacturing Practice for materials and articles intended to come into contact with food

The [Regulation \(EC\) No 2023/2006](#) on Good Manufacturing Practice (GMP) for materials and articles intended to come into contact with food prescribes the requirements conducive to a Good Manufacturing Practice (GMP) system.

As defined in Article 3, GMP means those aspects of quality assurance which ensure that materials and articles are consistently produced and controlled to ensure conformity with the rules applicable to them and with the quality standards appropriate to their intended use by not endangering human health or causing an unacceptable change in the composition of the food or causing a deterioration in its organoleptic characteristics.

An adequate implementation of GMP relies on three essential elements:

- **Quality assurance:** an obligation to implement a quality assurance system (taking account of the personnel required to put the system in place and the size of the business)
- **Quality control:** a system to monitor the implementation and achievement of GMP and identify measures to correct any failure to achieve GMP.
- **Documentation:** to establish and maintain appropriate documentation with respect to specifications, manufacturing formulae, and processing relevant to compliance and safety of the finished material or article. Documentation shall be made available to the competent authorities at their request.

This Regulation applies to all sectors and all stages of manufacture, processing, and distribution of materials and articles, up to but excluding the production of raw materials. Raw materials however shall comply with pre-established specifications that ensure compliance of the material or article with the rules applicable to it.

ExxonMobil and Good Manufacturing Practices (GMP)

Our fluid and plasticizer portfolio includes products that comply with GMP standards applied to food contact.

Please contact your ExxonMobil sales representative for more information on our GMP-proven products.

European food contact legislation »

EU Member States laws

EC Framework Regulation (EC) No 1935/2004

Regulation (EC) No 2023/2006 on Good Manufacturing Practice for materials and articles intended to come into contact with food

Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food

Directive 2009/32/EC on extraction solvents used in the production of food-stuffs and food ingredients

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Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food

Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food ("new" Plastics Regulation) is a specific measure within the meaning of Article 5 of Regulation (EC) No 1935/2004.

It consolidates previous EU Regulations and Directives with respect to plastics in food contact, repeals the previous Plastics Directive (2002/72/EC and its amendments), and incorporates a number of technical requirements dealing with migration testing.

This regulation applies to plastic materials and articles intended to come into contact with food. These materials and articles and parts thereof may be composed exclusively of plastics, of several layers of plastics, or of plastics combined with other materials. This regulation does not apply to ion exchange resins, rubber, or silicones.

Placing on the market

Plastic materials and articles intended to come into contact with food must comply with:

- requirements for use, labeling, and traceability set out in [Regulation \(EC\) No 1935/2004](#);
- GMP as defined in [Regulation \(EC\) No 2023/2006](#);
- compositional and declaration requirements set out in this Regulation.

Authorized substances

Only the substances included in the EU Annex I list or explicitly authorized by Article 6 may be intentionally used in the manufacture of plastic materials and articles. The list includes:

- monomers;
- additives (excluding colorants);
- polymer production aids (excluding solvents); and
- macromolecules obtained from microbial fermentation.

An overview of this list is provided in the Annex I Table of the regulation, with reference to specific restrictions, group restrictions, and verification on compliance notes. By way of derogation, substances other than those included in the EU list may be used as polymer production aids, solvents or colorants in the manufacture of plastic layers in plastic materials and articles subject to national law. Polymerization aids and non-intentionally added substances are not included in the EU list, but may be present in the plastic layers of plastic materials or articles provided they meet the safety requirement of the Article 3 of the [Framework Regulation \(EC\) No 1935/2004](#).

Compliance shall be assessed in accordance with internationally recognized scientific principles on risk assessment (Article 19).

General requirement on substances

Substances used in the manufacture of plastic layers in plastic materials and articles shall be of a technical quality and a purity suitable for the intended and foreseeable use of the materials or articles.

The composition shall be known to the manufacturer of the substance and made available to the competent authorities on request.

European food contact legislation »

EU Member States laws

EC Framework Regulation (EC) No 1935/2004

Regulation (EC) No 2023/2006 on Good Manufacturing Practice for materials and articles intended to come into contact with food

Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food

Directive 2009/32/EC on extraction solvents used in the production of food-stuffs and food ingredients

ExxonMobil fluids and plasticizers for food contact in Europe

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Dual use additives

Additives which are also authorized as food additives by Regulation (EC) No 1333/2008 or as flavorings by Regulation (EC) No 1334/2008 shall not migrate into foods in quantities having a technical effect in the final foods and shall not:

- exceed the restrictions provided for in Regulations (EC) No 1333/2008 or No 1334/2008 or in Annex I to this regulation for foods for which their use is authorized as food additive or flavoring substances; or
- exceed the restrictions set out in Annex I to this regulation in foods for which their use is not authorized as food additive or flavoring substances.

Such additives, when used in food contact applications shall meet the purity criteria of the food additives regulation.

Specific requirements

All plastic materials and articles must comply with **specific migration limits** (SML) and **overall migration limits** (OML). These migration limits correspond to the maximum amount of substances that materials and articles may transfer to food. They are expressed in mg of substance per kg of food (mg/kg) or in mg of substance per food contact surface area (mg/dm²). This regulation has introduced significant technical changes for SML and OML testing, modification and introduction of new food simulants. More details on migration tests conditions, simulant and reduction factors can be found in the annexes of the regulation.

- **Specific migration limit** (SML) - the maximum permitted amount of a given substance released from a material or article into food or food simulants.
- **Overall migration limit** (OML) - the maximum permitted amount of non-volatile substances released from a material or article into food simulants. In principle, the OML is a maximum 10 mg of substances/dm² of the food contact surface for all substances that can migrate from food contact materials to foods.

Declaration of compliance and documentation

A written declaration (Article 16 of Regulation (EC) No 1935/2004) shall be available for plastic materials and articles, products from intermediate stages of their manufacturing as well as for the substances intended for the manufacturing of those materials and articles. Information on the content of the declaration of compliance is provided in Annex IV of the regulation.

Supporting documentation

Appropriate documentation to demonstrate that the materials and articles, products from intermediate stages of their manufacturing as well as the substances intended for the manufacturing of those materials and articles comply with the requirements of this Regulation shall be made available to the national competent authorities on request.

European food contact legislation »

EU Member States laws

EC Framework Regulation (EC) No 1935/2004

Regulation (EC) No 2023/2006 on Good Manufacturing Practice for materials and articles intended to come into contact with food

Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food

Directive 2009/32/EC on extraction solvents used in the production of food-stuffs and food ingredients

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Directive 2009/32/EC on extraction solvents used in the production of foodstuffs and food ingredients

This concerns substances that are used in food manufacturing and food additives.

Some hydrocarbon fluids may be used in food manufacturing operations (“food processing aids”), as food additives or as primary substances in the manufacturing of food additives. Within the EU, significant regulatory coverage - both EU and national - exists for food and food additives.

[EU Directive 2009/32/EC](#) on the approximation of the laws of the Member States on extraction solvents used in the production of foodstuffs and food ingredients – is the reference.

This directive includes a list of solvents which may be used in extraction procedures during the processing of raw materials, of foodstuffs, or of components or ingredients of these products (Annex I). By establishing maximum solvent residue limits, the directive and its amendments ensure that the (technically unavoidable) residues do not damage human health. Conditions of use are specified for specific extraction solvents.

European food contact legislation »

[EU Member States laws](#)

[EC Framework Regulation \(EC\) No 1935/2004](#)

[Regulation \(EC\) No 2023/2006 on Good Manufacturing Practice for materials and articles intended to come into contact with food](#)

[Regulation \(EU\) No 10/2011 on plastic materials and articles intended to come into contact with food](#)

[Directive 2009/32/EC on extraction solvents used in the production of foodstuffs and food ingredients](#)

[ExxonMobil fluids and plasticizers for food contact in Europe](#)

US food contact legislation »

[Food contact regulations in Asia »](#)



ExxonMobil fluids and plasticizers for food contact in Europe

ExxonMobil Chemical Fluids

Our range of hydrocarbon and oxygenated fluids includes grades that comply with good manufacturing practice for materials and articles intended to come into contact with food ([Commission Regulation \(EC\) No 2023/2006](#)) of 22 December, 2006. Despite their exemption from the positive listing of the [Regulation \(EU\) No 10/2011](#), fluids may be used in the manufacturing of food-contact plastics materials and articles provided:

- They are exclusively used as solvent
- The compliance with Article III of the [Framework Regulation No 1935/2004](#) (regarding materials and articles intended to come into contact with food – p.7) is demonstrated through appropriate assessment

Information on the status of a specific grade can be obtained from your ExxonMobil sales representative. When applicable, certificate is available.

Exxsol™ Hexane may be used as extraction solvent for the production and fractionation of fats and oil and/or the preparation of defatted proteins products and defatted flours with specific maximum residue limits according to [Directive 2009/32/EC](#) (amended by [Directive 2010/59/EC](#)). Certificate can be obtained from your ExxonMobil sales representative.

The Hydrocarbon Solvents Producers Association (HSPA) recently presented dossiers to the German and Swiss food contact agencies for approval of certain constituents in printing inks which may come into indirect contact with food via migration through packaging. The HSPA is a sector group of the European Council of the Chemical Industry (CEFIC). The dossiers are currently under evaluation and we will inform our customers when the review is completed.

ExxonMobil Chemical Jayflex™ Plasticizers

Both Jayflex™ DINP and Jayflex™ DIDP appear on the positive list of the food contact regulation ([Regulation \(EU\) No 10/2011](#),) under FCM substance number 728 (DINP) and 729 (DIDP). The products are only to be used as:

- Plasticizer in repeated use materials and articles
- Plasticizer in single-use materials and articles contacting non-fatty foods, except for infant formulae and follow-on formulae, ([Directive 2006/141/EC](#)), or processed cereal-based foods and baby foods for infants and young children, ([Directive 2006/125/EC](#))
- Technical support agent in concentrations up to 0.1 % in the final product

A maximum total specific migration limit SML(T) of 9 mg/kg food simulant is specified. SML(T) means, in this specific case, that the maximum shall not be exceeded by the sum of the migration levels of DINP (FCM number 728) and DIDP (FCM number 729).

Food-contact certificates for specific fluids or plasticizers, or further information can be obtained from your ExxonMobil sales representatives.

European food contact legislation »

EU Member States laws

EC Framework Regulation (EC) No 1935/2004

Regulation (EC) No 2023/2006 on Good Manufacturing Practice for materials and articles intended to come into contact with food

Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food

Directive 2009/32/EC on extraction solvents used in the production of food-stuffs and food ingredients

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US food contact legislation

The USA approach to regulating food contact materials and food additives relies on the U.S. Food and Drug Administration (FDA) administering the U.S. Federal Food, Drug and Cosmetic Act (FFDCA), which authorizes assessment of the safety of ingredients in foods, drugs and related products.

Federal Food, Drug and Cosmetic Act (FFDCA) »

The FFDCA is one of the oldest laws that regulate in significant detail the control of direct and indirect food additives.

Definition of a food additive »

It is a substance that may become a component of food, either directly or indirectly, or that may affect the characteristics of the food.

ExxonMobil fluids for food contact in the US »

ExxonMobil offers a portfolio of fluids that comply with the Good Manufacturing Practices (GMP) for indirect food contact.

Adulteration and misbranding »

The Act prohibits "adulteration and misbranding" and the FDA approves direct or indirect food additives before they are marketed.

New food additives »

A substance not approved yet for use as a food additive by the FDA, and not exempted from the food additive requirements, is subject to safety clearance from the FDA.

Major parts of the FDA Food Additive Regulations »

List of the major relevant parts of the Code of Federal Regulations in the area of food and food contact.

- European food contact legislation »
- US food contact legislation »
 - Federal Food, Drug and Cosmetic Act (FFDCA)
 - Definition of a food additive
 - ExxonMobil fluids for food contact in the US
 - Adulteration and misbranding
 - New food additives
 - Major parts of the FDA Food Additive Regulations
- Food contact regulations in Asia »

Federal Food, Drug and Cosmetic Act (FFDCA)

The [FFDCA](#) is one of the oldest laws that regulate the control of direct and indirect food additives. As a result, the 'FDA status' of food additives, particularly of indirect additives such as components of food contact materials and articles, has historically been an important characteristic of such substances. The key points regarding FFDCA, and in particular the food additive component, may be summarized as follows:

The present FFDCA was passed in 1936, revising the original Food and Drugs Act of 1906.

The 1936 Act:

- extended coverage of the law to cosmetics and medical devices
- required pre-distribution clearance to ensure the safety of new drugs
- provided for tolerances for unavoidable poisonous substances

Later amendments of the 1936 law resulted in:

- mandatory pre-use safety assessment and approval of food additives
- need for proof of the safety of color additives for foods, drugs, and cosmetics
- a ban on the intentional addition to food of substances known to cause cancer in animals (the so-called "Delaney Clause")

For further information, please [read this article](#) or contact your ExxonMobil sales representative.

- European food contact legislation »
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Definition of a food additive

The FFDCCA defines a food additive as a substance that may through its intended use become a component of food, either directly or indirectly, or that may otherwise affect the characteristics of the food. This includes any substance intended for use in producing, manufacturing, packing, processing, preparing, treating, packaging, transporting, or holding the food, plus any source of radiation intended for any such use.

From the above definition, it follows that if there is no migration of a component substance from a food contact material or article into the food, it does not become a component of the food and thus is not a food additive.

Note that this definition of a food additive in the U.S. differs from the one prevailing in the EU, for example.

[European food contact legislation »](#)

[US food contact legislation »](#)

[Federal Food, Drug and Cosmetic Act \(FFDCA\)](#)

[Definition of a food additive](#)

[ExxonMobil fluids for food contact in the US](#)

[Adulteration and misbranding](#)

[New food additives](#)

[Major parts of the FDA Food Additive Regulations](#)

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ExxonMobil fluids for food contact in the US

For indirect food additives which require hydrocarbon and oxygenated fluids, ExxonMobil offers a portfolio of fluids that comply with the Code of Federal Regulations (CFR) Good Manufacturing Practices (GMP) ([21 CFR 174.5](#)).

These fluids can be used in your manufacturing of food-contact material, provided the selected product grade and intended use comply with applicable 21 CFR regulations. For example, food applications as prescribed by 21 CFR regulations may include:

- Froth flotation cleaning of vegetables
- Components of insecticide formulations on processed foods
- Components of coatings on fruits, vegetables and egg shells
- De-foaming agents and slimicides
- Surface lubricants for food processing equipment and metallic articles
- Components of animal glue
- Components of adhesives
- Catalysts carrier or polymerization media/diluents
- Components of paper and paperboard in contact foods

Exxsol™ Hexane can be used as an extraction solvent for the production of many vegetable oils from oilseeds. Examples of oils include: soybean, rapeseed (canola), palm and sunflower ([21 CFR 173.270](#)).

Also available are fluids for agricultural applications that comply with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). They have been reassessed under the U.S. Environmental Protection Agency Food Quality Protection Act and are exempt from the requirements of a tolerance under [40 CFR 180.910](#) and [40 CFR 180.930](#).

ExxonMobil's FIFRA-compliant fluids are:

- **Aromatic Fluids (including ND grades)**
 - Aromatic / Solvesso™ 100 Fluid
 - Aromatic / Solvesso™ 150 Fluid
 - Aromatic / Solvesso™ 200 Fluid
- **Isopar™ Fluids - Isoparaffino**
 - Isopar™ C, E, G, H, J, K, L, M, N, P and V Fluids
- **Exxsol™ D Fluids - Dearomatized Aliphatics**
 - Exxsol™ D40, D60, D80, D95, D100, D100S, D110, D120, D130 and D140 Fluids

Food contact certificates for specific fluids or other information can be obtained from your ExxonMobil sales representative.

- European food contact legislation »
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Adulteration and misbranding

The act's main regulatory tool is prohibition of "adulteration and misbranding". The FDA interprets these words to require agency approval before a company can market regulated direct or indirect food additives, and certain food, drug and medical device products.

Use of an unapproved direct or indirect food additive as an ingredient in a food product or in a food contact product renders the product adulterated and thus illegal.

The term "misbranded" refers to false or misleading labeling statements, designs or pictures, or to omission of required statements.

- [European food contact legislation »](#)
- [US food contact legislation »](#)
 - [Federal Food, Drug and Cosmetic Act \(FFDCA\)](#)
 - [Definition of a food additive](#)
 - [ExxonMobil fluids for food contact in the US](#)
 - [Adulteration and misbranding](#)
 - [New food additives](#)
 - [Major parts of the FDA Food Additive Regulations](#)
- [Food contact regulations in Asia »](#)

New food additives

A substance not approved yet for use as a food additive by the FDA, and not exempted from the food additive requirements, is subject to safety clearance from the FDA. Such an FDA direct or indirect “food additive petition” may be a long and expensive process (up to or above \$1,000,000). The petition dossier will typically include toxicology test results for sub-chronic and chronic feeding studies in animals.

Petitions are also required to extend the allowed conditions of use of approved substances, or to change specifications.

The FDA will approve an additive for the intended use if agency officials decide it is safe, after review of the petition dossier. Approval is granted in the form of a regulation that will be published in the Federal Register and the Code of Federal Regulations. It will be valid for any interested party, not only the petitioner.

An “alternative FDA approach” has been created, i.e. the “Food-Contact Notification” (FCN) system, provided for by Section 309 of the FDA Modernization Act of 1997. This system can - and now frequently does - replace a formal FDA petition for new food-contact substances. After submitting the appropriate data to the FDA, the notifier will be able to market his new food-contact substance after 120 days, unless the FDA objects within that period. Contrary to classical FDA petitions and regulations, the marketing allowance for the new substance is only valid for the notifier. The new food-contact FCN system will replace most traditional FDA petitions. An actual petition - rather than a FCN - will only be required in cases of real concern from FDA, such as when high toxicity/high exposure situations are involved.

- European food contact legislation »
- US food contact legislation »
 - Federal Food, Drug and Cosmetic Act (FFDCA)
 - Definition of a food additive
 - ExxonMobil fluids for food contact in the US
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 - Major parts of the FDA Food Additive Regulations
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Major parts of the FDA Food Additive Regulations

The table below lists the major relevant parts of the Code of Federal Regulations in the area of food and food contact.

FDA regulations can be product or application specific. They may typically contain:

- additive or product specifications,
- allowed additions of other substances,
- allowed conditions of use or restrictions in use, etc.

Major parts of the FDA Food Additive Regulations

The FDA food additive regulations can be found in the [Code of Federal Regulations \(CFR\), Chapter 21, Subchapter B - Food for Human Consumption - Parts 170 - 199.](#)

The major parts are as follows:	
Part 170	Food additives
Part 171	Food additive petitions
Part 172	Food additives permitted for direct addition to food for human consumption
Part 173	Secondary direct food additives permitted for food in human consumption
Part 174	Indirect food additives: General
Part 175	Indirect food additives: Adhesives and components of coatings
Part 176	Indirect food additives: Paper and paperboard components
Part 177	Indirect food additives: Polymers
Part 178	Indirect food additives: Adjuvants, production aids and sanitizers
Part 179	Irradiation in the production, handling and processing for food
Part 180	Food additives permitted in food on an interim basis or in contact with food pending additional study
Part 181	Prior-sanctioned food ingredients
Part 182	Substances generally recognised as safe
Part 184	Direct food substances affirmed as generally recognised as safe
Part 186	Indirect food substances affirmed as generally recognised as safe
Part 189	Substances prohibited from use in human food

Each of these parts is divided into subparts, which themselves consist of sections covering more specific subjects. Reference to such a section is made as illustrated by the following example: 21 CFR 178.3740 refers to the part 178 section 3740 on “plasticizers in polymeric substances”.

[European food contact legislation »](#)

[US food contact legislation »](#)

- [Federal Food, Drug and Cosmetic Act \(FFDCA\)](#)
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- [ExxonMobil fluids for food contact in the US](#)
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Food contact regulations in Asia

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China Food Safety Law and National Standards

The Food Safety Law of the People’s Republic of China (PRC), which became effective on June 1, 2009, governs all issues involving food quality and food safety in the PRC. It covers all food, food additives and food-related products. The Food Safety Law was revised on April 24, 2015, providing ongoing effort to strengthen food safety supervision and management including providing legal guidance on the issuance of food safety national standards.

These national standards (GB or “Guo Biao” in Chinese) apply to, among other things, food contact materials, including resins, additives in food containers and packaging materials. They set detailed requirements for various food contact materials, and are promulgated jointly by the National Health and Family Planning Commission (NHFPC) and China Food and Drug Administration.

Examples of GB standards and applications relevant to ExxonMobil fluids, although not fully defined yet in terms of scope and/or terminology, include:

- GB9685-2008 “Hygienic standards for uses of additives in food containers and packaging materials”: it prescribes products approved for food contact applications based on their CAS number;
- GB 16629-2008 “Solvent for extraction of vegetable oils”: specific to the use of hydrocarbon solvents for extraction of edible oils, it prescribes requirements and test methods.
- The oil products approved for use in rolling aluminum for food contact applications will be dependent on a number of new and revised GB standards not yet published.
- As these Chinese food contact regulations and standards evolve, in particular after the revised Food Safety Law took effect on Oct 1, 2015, updates will be provided on ExxonMobil-compliant products.

For more information on China Food Safety Law and National Standards, [click here](#).

Taiwan FDA

In Taiwan, the Food and Drug Administration (FDA) has published a hygiene standard for food processing aids, listing seven substances including hexane and IPA fluids. This standard (only available in Chinese) became effective February 18, 2016. For each of the food processing aids such as ExxonMobil Exxsol™ hexane and ExxonMobil™ IPA fluids, the standard contains maximum residue limits for specific food processing applications (e.g., oilseed extraction) as well as specification and test requirements:

Hexane:

- May be used for extraction of edible oils, residual level below 0.1 ppm;
- May be used for other types of food, residual level below 20 ppm.

IPA:

- May be used for spice oleoresin, residual level below 50 ppm;
- May be used for lemon oil, residual level below 6 ppm;
- May be used for extraction of hops, residual level below 2.0% (accounted by weight).

For more information, please contact your ExxonMobil sales representative

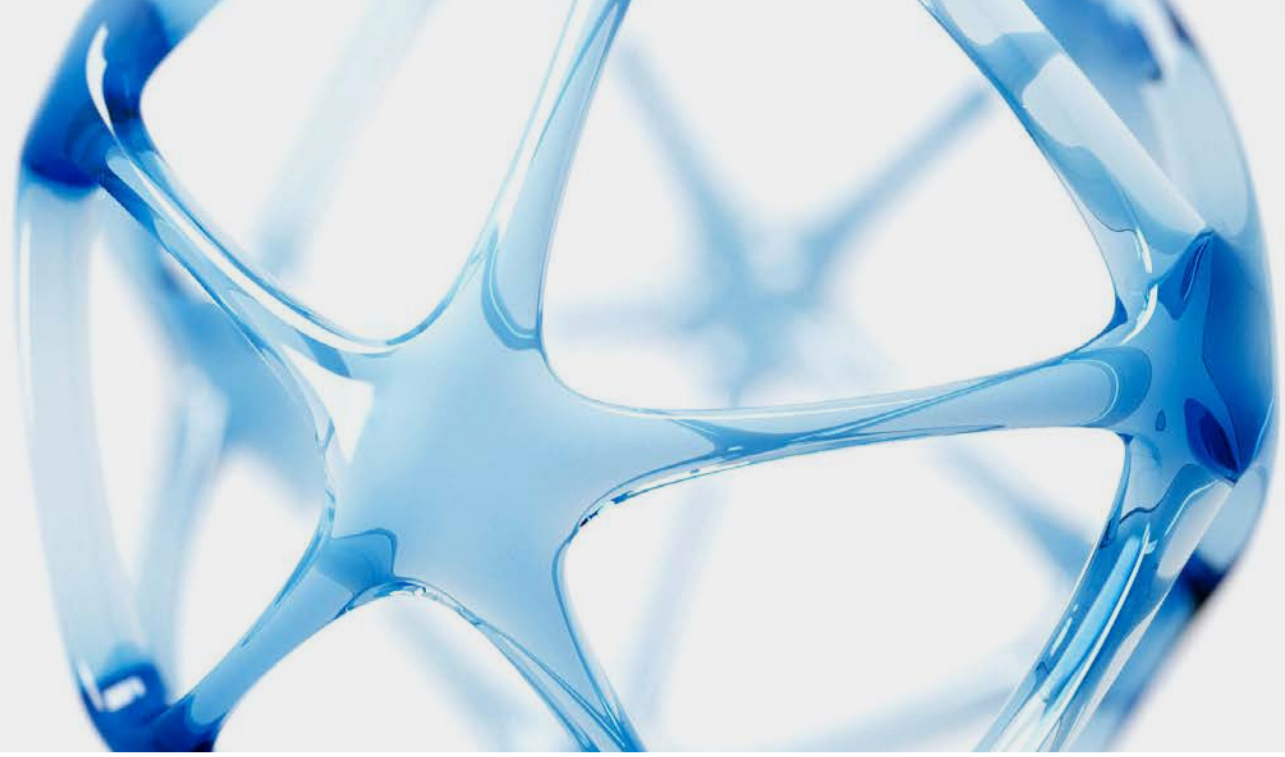
These materials have been prepared for general information purposes. The information presented is not legal advice, is not to be acted on as such, may not be current and is subject to change without notice.

For more information on Taiwan FDA, [click here](#).



Other regulations





BBQ lighter and decorative lamp fluids »

ECHA acknowledges the safe use of solvents in BBQ lighters and decorative lamps.

Storage regulations »

The Seveso III directive aims to better prevent major accidents involving dangerous substances.

Waste and disposal regulations »

The disposal of a chemical product should conform to the manufacturer's instructions.

ExxonMobil fluids not impacted by recent FIFRA action »

EPA's revocation of the methyl naphthalene tolerance exemption does not impact the use of ExxonMobil fluids in agrochemical formulations.

BBQ lighter and decorative lamp fluids

ECHA DROPS ITS CAMPAIGN TO RESTRICT THE USE OF GRILL/BBQ LIGHTER FLUIDS AND FLUIDS FOR DECORATIVE LAMPS

On April 17, 2015 The European Chemical Agency (ECHA) withdrew its intention to restrict the selling and use of grill/BBQ lighter fluids and fluids for decorative lamps. ExxonMobil welcomes the decision by ECHA which acknowledges that certain solvents can be used safely in these applications and has included lamp oils and grill/BBQ lighter fluids as a supported use in its REACH registration dossiers for the relevant products.

ECHA's Annex XV report (July 8 2015), concludes that due to the clearly decreasing trend of poisonings attributed to lamp oils and grill/BBQ lighter fluids (labelled R65 or H304), and with no safer or feasible alternatives, there is no need for stricter regulatory measures including product bans. The downward incident trend follows tighter labelling and packaging requirements in force since 2010.

Background information:

ECHA had announced in 2014 an inspection campaign targeting companies involved in producing potentially dangerous consumer products with child resistance fastenings.

The purpose was to check and improve the safety of packaging and use of hazardous substances and mixtures, for consumers--and for children in particular. Typical consumer products included lighter fluids, lamps oils, disinfectants, cleaning and laundry products as well as drain openers.

This project was a response to the restriction expressed by the Commission in Annex XVII to Regulation (EC) No 1907/2006, published in 2010, with a view to reduce incidents linked to certain products. It was the first one with a focus on enforcement of specific packaging requirements.

The inspections took place from July to December 2014 and the report was published on April 17, 2015.

Fluids recommended by ExxonMobil for lamp oil applications include Exxsol™ D60, D80, and Isopar™ L and M fluids; for grill/BBQ lighter fluids Exxsol D40, D60 and D80 and Isopar G, J and L fluids.

For more information:

[Annex XV report: Assessment of whether the use of grill lighter fluids and fuels for decorative lamps, labelled R65 or H304, intended to be supplied for the general public, should be restricted \(8 July 2015\)](#)

[ECHA on child-resistant fastenings project \(3 June 2015\)](#)

[Annex XVII to Regulation \(EC\) No 1907/2006 \(see page 3/paragraph 6 on the Commission 's request for ECHA to produce a dossier on lamp oils and BBQ lighters\) \(1 April 2010\)](#)

For questions, please contact your ExxonMobil sales representative.

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Storage regulations

The Seveso III Directive

Seveso III ([Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances](#)) is the latest amendment of the European Seveso Directive. Adopted in 2012, it became effective June 1, 2015 in the European Union Member States.

The Seveso Directive aims at preventing major accidents involving dangerous substances and, should accidents occur nevertheless, at limiting their consequences on human health and the environment. It covers establishments where dangerous substances may be present (e.g., during processing or storage) in quantities above a certain threshold, except for certain industrial activities which are subject to other legislation providing a similar level of protection (e.g., nuclear establishments or the transport of dangerous substances).

Depending on the amount of dangerous substances present, establishments are categorised in lower- and upper-tier establishments. The upper-tier establishments are subject to more stringent requirements.

The main changes from Seveso II to Seveso III include:

- Updating and aligning the list of substances covered by the Directive to the EU legislation on the classification of dangerous substances (classification handled by the Classification, Labelling and Packaging (CLP) regulation in Europe);
- Strengthening citizens' rights on access to information, justice and on participation in decision-making;
- Improving the way information is collected, managed and shared;
- Introducing stricter standards for inspections;
- Updating provisions, such as streamlining and simplification to reduce administrative burden.
- "Exclusion for military establishments" and modified "requirements for operators of locations."

Key points for ExxonMobil's customers:

- The Seveso III Directive will be implemented separately into each EU country's national legislation.
- The listing in Annex I of Seveso III Directive refers only to the classification, labelling and packaging (CLP) classification classes of substances. CLP will be fully implemented for mixtures as of June 1, 2015.
- ExxonMobil is already applying CLP for all its products.
- Seveso III's alignment with CLP classifications has not caused, for ExxonMobil's fluids, plasticizers and chemical intermediates, any change in the hazard categories.
- ExxonMobil fluids are captured by Seveso III if the quantity of product stored on any individual site exceeds set thresholds, such as:

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Hydro-carbon fluid grades	Classification	ExxonMobil products	Threshold volume: Lower-tier req.	Threshold volume: Upper-tier req.
Pentane grades	Flammable Liquids Cat 1	Exxsol [™] Isopentane S Pentane 80 Pentane 100S	If > 10 ton	If > 50 ton
Hydro-carbon grades	Only if Aquatic toxicity Chronic Cat 2	Isopar [™] C, E, G Exxsol [™] Isohexane, Hexane, Heptane, DSP 60/95 S, DSP 80/100, DSP 100/140, DSP 100/160 Nappar [™] 6 Varsol [™] 30 and 40 Solvesso [™] 100, 150, 150 ND, 200, 200 ND	If > 200 ton	If > 500 ton
	Only if Flammable Liquids Cat 2 or 3	Isopar [™] H, J, K Exxsol [™] DSP 145/160, D30, D40	If > 5,000 ton	If > 50,000 ton

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Main obligations for operators

Any of our industrial customers carrying operational stocks of these products that are above the threshold will have to fulfil the Seveso III requirements including:

- Notification of all concerned establishments (Article 7)
- Major accident prevention policy (MAPP, Article 8);
- Safety report for upper-tier establishments (Article 10);
- Internal emergency plans for upper tier establishments (Article 12);
- Information in case of accidents (Article 16).

Details of the Directive are provided [here](#) to view background and summary information issued by the European Commission. You can also contact your ExxonMobil sales representative for further support.



Waste and disposal regulations

Chemical products may present a danger to man and the environment if they are not disposed of properly. Surplus product or waste, resulting from production or transportation, should be disposed of, by following the instructions of the manufacturer. In addition, any contaminated packaging must be subject to similar considerations.

If the disposal of the substance or mixture (surplus or waste resulting from the foreseeable use) presents a hazard, a description of these residues and information on their safe handling will be given. Indications on the appropriate methods of disposal of both the substance or mixture and any contaminated packaging (incineration, recycling, landfilling, etc.) will also be provided.

Appropriate methods of waste treatment include for example:

- recycling
- incineration
- landfilling

Regulatory disposal information

Waste treatment methods are governed in many cases by local and national legislation. Before disposal, a knowledgeable person should be consulted. Users should be aware of the regulations that apply in their local operational sites and should identify suitable experts for advice.

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ExxonMobil fluids not impacted by recent FIFRA action

EPA's revocation of the methyl naphthalene tolerance exemption does not impact the use of ExxonMobil fluids in agrochemical formulations

On December 14, 2016, the Environmental Protection Agency (EPA) announced the revocation of approvals for 72 inert ingredients used in pesticide products. Methyl naphthalene, CAS No. 1321-94-4, is one of the chemicals removed.

ExxonMobil heavy aromatic fluids (e.g., ExxonMobil™ aromatic 200 fluid, Solvesso™ 200 and their related grades) are substances typically containing both 1-methylnaphthalene and 2-methylnaphthalene. The EPA's action was not motivated by concerns about hazard or risk and has no current or future impact on the use of any ExxonMobil heavy aromatic fluids in agrochemical formulations.

ExxonMobil fluids are substances, not mixtures

ExxonMobil hydrocarbon fluids are complex substances produced through the refining of petroleum and have a specific Chemical Abstracts Service (CAS) descriptor, e.g., solvent naphtha (petroleum) heavy aromatic (64742-94-5).

Because they have been approved as substances, the individual components require no separate evaluation or approval. Furthermore, the approval status of the substance is not directly impacted by that of various components that may be present.

FIFRA inerts exemptions continue to apply to ExxonMobil fluids

The 14 December action by the EPA led to the immediate withdrawal of those 72 chemicals from EPA's [InertFinder database](#) whereas ExxonMobil aromatic 200 fluid and related grades are still searchable in the database by its CAS number.

Separately, in December, 2016 the EPA Inerts Branch confirmed to ExxonMobil that the relevant fluids have been added to their [Trade Name Database](#).

Removal of 72 inert ingredients is due to their lack of use

In the 14 December, 2016 Federal Register Notice, the US EPA stated the following (emphasis added):

*"C. What action is the Agency taking? EPA is removing 72 chemical substances from the current listing of inert ingredients approved for use in pesticide products **because these chemical substances are no longer used as an inert ingredient in any registered pesticide product.**"*

Furthermore, in their [May 22, 2014 letter to California Attorney General Kamala Harris](#), the EPA laid out four steps they will take for their inert ingredient strategy. This strategy indicates that food-use inert ingredients (including ExxonMobil Aromatic 200 Fluid and others), which were re-evaluated under the Food Quality Protection Act, meet current safety standards and gives priority focus to those inerts which have not had tolerance reassessments (i.e. non-food use inert ingredients).

The EPA's action was driven by 'housekeeping' and was not motivated by concerns about hazard or risk. ExxonMobil heavy aromatic fluids are confirmed by the EPA under the Food Quality Protection Act to be safe for intended use.

For more information, please contact your ExxonMobil sales representative.

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