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REACH in general

The Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) intends to protect the health and environment and enhance the European internal market with chemicals which replace hazardous substances and mixtures. REACH prohibits, restricts and limits the manufacture, use and placing on the market of certain chemicals. This regulation aims to register all chemicals which get used or imported into the EU. The Grundfos Focus List covers the three most important regulatory lists from the REACH regulation: the Candidate List (which include the Substances of Very High Concern aka. SVHCs), REACH Annex XIV (Authorization list) and REACH Annex XVII (Restriction list) substances.

REACH Candidate list of SVHCs

This list includes substances of very high concern – SVHCs. These substances are characterized as having serious and often irreversible effect on humans and environment. These substances are not banned but if they are present in the products above 0.1% (weight by weight), the customers have to be informed at least about the name of the substance. To avoid the misunderstanding that this information might cause, Grundfos Top Management has decided to generally phase out SVHCs. In addition since January/5/2021 the Waste Framework Directive (2008/98/EC) obliges companies putting products on the European market which contains SVHCs in a concentration more than 0.1% (weight by weight) to report the substance into the SCIP database along with data which identifies the product.

REACH Annex XIV – Authorization list

The Authorization list contains all the substances which are prohibited to use with or without exemptions. The European Chemical Agency can authorize a specific application to use the substance for but only for those who apply for authorization. After the sunset date the substance is strictly prohibited to use above 0.1% (weight by weight).

REACH Annex XVII – Restriction List

The Restriction list covers substances which have only certain restricted applications, otherwise they can be used freely. For example Nickel (CAS No. 7440-02-0) is restricted to use in jewellery but is free to be used in steel production.

RoHS (Directive 2011/65/EU and 2015/863/EU)

This EU legislation restricts the use of hazardous substances like lead, mercury, cadmium, hexavalent chromium and some flame retardants in electrical and electronic equipment. This directive also supports the collection and recycling of such equipment (WEEE directive).

In 2015 the EU commission published this new RoHS directive to amend Annex II of the RoHS directive 2011/65 EU. This new directive added the following four phthalates which are usually used as plasticizers to the list of restricted substances.

In light of the fact that in many applications is an unrealistic expectation not to use the restricted substances above the limit values, RoHS has several exemptions for some usage of RoHS substances. It is important to notice that these exemptions have expiration dates after which they are not usable anymore. The most frequently used exemptions are for lead usages (lead as an alloying element in copper alloys, or stainless steel, etc.)

China RoHS (MIIT order 32)

China RoHS is the Chinese version of the European RoHS directive. In many cases, they are quite similar, but differs from each other on matters like marking and exemptions. If your product contains more than the maximum level allowed of the six substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ethers), it is important to notice that China RoHS does not restrict substances like EU RoHS, but it requires the marking and disclosure and the location of the substances in the product.

TSCA (Toxic Substance Control Act, 1976) Section 6

The Toxic Substances Control Act (TSCA) Chemical Substance Inventory contains all existing chemical substances manufactured, processed, or imported in the United States that do not qualify for an exemption or exclusion under TSCA. As a complex legislation TSCA rules the importing, manufacturing and placing on market of the materials which could be toxic for human and environment.

The Section 6 bans or restricts the manufacture (including import), processing, distribution in commerce, and use of chemical substances, as well as any manner or method of disposal.

POPs (Commission Regulation (EU) No 1342/2014 on Persistent Organic Pollutants)

Persistent organic pollutants (POPs) are chemical substances that persist in the environment, bioaccumulate through the food web, and pose a risk of causing adverse effects to human health and the environment. This group of priority pollutants consists of pesticides, industrial chemicals and unintentional by-products of industrial processes. Ultimately POPs are to be eliminated, therefore most of them are strictly prohibited to be manufactured, used and to be placed on the market (specific exemptions may apply).

IMO (International Maritime Organization) Resolution MEPC 197(62)

This convention aims to ensure that ships do not pose any unnecessary health risks to human and environment when being recycled after end of operational live. IMO is only relevant for product chemicals/components as IMOs intention is to function as a Green passport for ships. When ships are disassembled, this green passport will function as a map of regulated substances, in this way the waste handlers know how to handle the waste.

EU Regulation 1257/2013 on ship recycling (SRR)

The EU-harmonized IMO, hence its aim is the same as the IMO's. Differences between IMO and SRR:

- stricter limit values on certain hazardous substances and substances groups,
- SRR regulates two more substances groups (HBCDD and PFOS) in addition to the original IMO-regulated ones.

PROP65 (California Proposition 65, Safe Drinking Water and Toxic Enforcement Act of 1986)

California Proposition 65 requires businesses to provide warnings about certain hazardous chemicals so that the customers can make informed decisions about their exposures. As Grundfos does business worldwide - also in California - the substances listed in this piece of legislation are in scope for all supplied material; Grundfos needs to be notified about them so that the customers can be informed properly.

Batteries Directives (2006/66/EC and 493/2012/EC)

It intends to contribute to the protection, preservation, and improvement of the quality of the environment by minimizing the negative impact of batteries/accumulators and waste batteries/accumulators. With some exemptions it applies to all batteries and accumulators, no matter their chemical nature, size, or design. From a chemical composition point of view this legislation regulates the usage of cadmium and mercury.

Packaging (EU Directive 94/62/EU)

As part of the EU's Waste Framework Directive EU Directive 94/62/EU – as the main legislation on packaging and packing waste – regulates the composition of different packaging materials (restriction of certain hazardous substances as eg. some heavy metals). Besides the

previous, the EU's general waste handling approach is present in the directive: “reduce-reuse-recycle”.

GHG (REGULATION (EU) No 517/2014) (Greenhouse gases)

Most of the fluorinated gasses have a negative effect on global warming (hence the name: greenhouse gases), therefore they are regulated in this EU directive. This regulation aims to reduce the environmental impact of "f-gasses" by regulating their usable amount in the critical equipment (e.g. in refrigeration and air conditioning systems).

ODS (REGULATION (EC) No 1005/2009 Ozone depleting substances)

The regulation that deals with Ozone Depleting Substances (ODS in short) includes hydrocarbons which contain one or more halogen (Bromine, Chlorine and Fluorine) atoms as substitution. These chemicals cause significant damage to the ozone layer and most of them have high global warming potential therefore the regulation focuses on the phase-out of these substances.

Note: In order to learn more please consult the Grundfos Focus List in which you can find the regulated substances in the above mentioned legislation. You can find the Focus List [HERE](#).