EUROMOT Final Response; 7 March 2014

Survey

Questions

1. Contact Information

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2. Area of activity (more than one is possible):

□ Industry;

□ Retail/distribution;

□ Rent/repair business;

X Industry/business association;

□ RoHS enforcement;

□ RoHS analysis;

€ Environmental NGO;

□ Consumer NGO;

□ Institute/consultancy;

□ EU Member State Representative;

□ International agency / organisation;

□ Other - Please specify: _____

3. EEE newly in scope

Please specify products of relevance for your organisation that are understood to be newly in the scope of the RoHS Directive and provide details regarding the following questions. You may use the table template provided below for this purpose.

a. If the product or application falls under categories 1-7 or 10, please explain why this it is considered to be newly in scope, i.e. why it was not required to be compliant with the RoHS substance restrictions under the RoHS 1 regime;

As the primary energy is not electricity but fuel such as petrol, diesel or gas, all equipment powered by internal combustion engines did not fall under the scope of Directive 2002/95/EC. Any equipment powered by internal combustion engines now in scope of Directive 2011/65/EU is newly in scope of RoHS and will probably fall into category 11.

It should be noted that most engine-powered equipment is covered by exclusions under Article 2 (4) and that engine powered equipment above 1000 V for alternating current and 1500 V for direct current is not in scope of the RoHS Directive.

b. Do similar products or applications exist that were already in the scope of RoHS 1? Please explain the differences concerning compliance requirements;

As the primary energy is not electricity but fuel such as petrol, diesel or gas, all equipment powered by internal combustion engines did not fall under the scope of Directive 2002/95/EC.

c. Please provide data concerning the EU market share in relation to the general market of the product/ application.

Engines power many different product groups and markets. Getting market data on this diverse group of products will be challenging.

Equipment manufacturers association such as EGMF and EUROPGEN may have better access to this type of data.

d. Please provide information as to the range and average service life of the product or application. If relevant please detail differences relevant in this regard to certain models or sub-types.

This varies significantly between equipment based on internal combustion engines. Some products may have an average service life of 50h (two years) others in excess of 80,000 hours may still be in service after 25 years.

e. Please state if repair of products or applications is common practice. Please provide details of various components or parts of relevance in this regard.

In general, it is common practice to repair equipment based on internal combustion engines and it is an important part of the business. Depending on the type of equipment the engines may have multiple overhauls in their service life. Each overhaul will need many spare parts some of which may contain substances which are restricted under the RoHS 2 Directive.

Specific comments for Gensets:

Repair of commercial generating set products, switchgear and controls is standard practice. Commercial engines that are incorporated into EEE in particular have several major overhauls in their useful lives, using many spare parts, including bearings, cylinder liners, turbochargers, whether these engines qualify under the Large Scale exclusion or not.

The alteration of the exclusion 9(b) for the use of lead in bearings, making this specific to refrigeration components, during the recast of the RoHS Directive; coupled with the elimination of non-permanently installed products from the Large Scale exclusion clauses, has meant that many engine manufacturers have been forced to research substitute materials in applications where the engine is incorporated into products that are determined as EEE, In cases where existing components or assemblies are used in products, it may not be either commercially viable or technically feasible to bring all parts into compliance during the transition period (considering e.g. the function, geometry or durability). If the EU Commission determines that products newly in scope placed on the market during the transition period can only be repaired using compliant parts after 22 July 2019, potentially such products may become unrepairable. This could result in products that otherwise had a life span in excess of 10 years becoming impossible to maintain; resulting in early life scrapping and appearance in waste streams, creating an unnecessary burden on the environment and stakeholders, thus negating any advantage of the transitional arrangement.

Although EUROMOT currently feels that this would mainly apply to larger commercial products that might be subject of the Large Scale exclusion clauses for Fixed Installations or Stationary Industrial Tools, EUROMOT wishes to point out the apparent contradiction caused by the interpretation of the

term “Large Scale” in relation to certain applications. In the FAQ document, 12 December 2012, page 11, it is noted that:

“Machinery that has partial mobility, for example semi-mobile machinery running on rails, can be of ‘permanent use’. On the other hand, EEE that is intended to be used on different sites during its life is not considered as permanent. It is an indicator of permanent use if the equipment is not readily re-locatable (or ‘mobile intended’) and if it is intended for use at one single location.”

Thus, for example, a 2.5 MW enclosed generating set installed permanently at a pre-defined and dedicated location would be excluded as a Large Scale Fixed Installation. An identical product, offered for rental use, is currently interpreted as not entitled to this exclusion as it will not be used at one location. Research and development for lead-free components for larger products is more extensive and will continue throughout the transition period. It is not known at this stage whether it will be feasible to replace all items with compliant components. Therefore, there is a significant risk that rental and similar products placed on the market during the transition period may not be capable of being repaired with compliant parts and may be forced out of service, to the detriment of the environment and all stakeholders.

EUROMOT urges the EU COM to reconsider making provision of fully compliant spare parts for products placed on the market during the transition period, particularly in relation to products that would otherwise be excluded apart from their relocation as this will result in an unnecessary impact on users of otherwise serviceable equipment and will lead in some cases to early life replacement due to unavailability of spare parts.

f. Please specify if secondary market operations are common for products/ applications mentioned and provide information as to such practices (leasing; renting; secondary sales operated by retailers and/or by consumers, etc.). Please provide detail as to how often such operations occur

Yes, secondary market operations are common for many products based on internal combustion engines. This includes leasing, renting, and secondary sales operated both by retailers and equipment owners. For some products, the secondary market is so well established that the potential for resale is an important factor in the value of the product.

Specific Comments for gensets:

Leasing and renting operations are common in generating set and power systems equipment. Secondary sales are less common but do occur particularly within rental fleet renewals. Rental is common in supporting construction operations, utility power line maintenance and in repowering operations. Leasing occurs particularly on higher power ratings, but is more commonly associated with permanently installed products.

Although the Large Scale exclusion clauses will assist in eliminating the requirement to comply for some larger products, these clauses restrict their application to products that are permanently installed and used permanently in a predefined and dedicated location. EUROMOT has established that there is a significant market in power systems products for rental markets, for use in construction industry, utility reinforcement and other similar applications extending into multi-megawatt single-unit ratings. Because rental units do not satisfy the permanent installation and predefined location requirement, these do not qualify for the Large Scale exclusion, even though these products are no more or less likely to impact the environment than their permanently installed and structurally identical counterparts.

The requirement for Large-Scale products that are not permanently installed at a predefined and dedicated location to comply with the Directive means that by 22nd July 2019 or in some cases earlier, items that previously contained substances listed in Annex 1 of 2011/65/EC can no longer be supplied as spare parts. Manufacturers of products that have limited longevity due to other

requirements, e.g. emissions, will be unlikely to invest in the research and development required to develop new parts. This could result in large products that otherwise had a life span of 10-20 years becoming impossible to maintain; resulting in early life scrapping and appearance in waste streams, creating an unnecessary burden on the environment and stakeholders.

EUROMOT feels that the inclusion into scope of generating sets, switchgear and similar products, rated above 375 kW through to multi-megawatt outputs, simply by these products not being permanently installed at a predefined and dedicated location and the resultant restriction on provision of spare parts for products placed on the market during the transitional period, will place an unacceptable burden on the environment and stakeholders. This will cause considerable financial harm both to manufacturers and all involved in the secondary market. EUROMOT recommends that EU COMM reconsiders its position regarding the disqualification of otherwise Large Scale products that are not permanently installed, from the Large Scale exclusion, to enable spare parts to continue to be supplied after the end of the transitional period.

4. Compliance of EEE newly in scope

The RoHS Directive restricts the use of certain hazardous substances in EEE that is to be marketed on the European market (2011/65/EU, Annex II). Annex II specifies maximum concentration values of the different hazardous materials that are tolerated by weight in homogeneous materials

The hazardous substances listed in Annex II at present, as well as the tolerated maximum concentration values (%/weight) are listed below:

- Lead (0,1 %)
- Mercury (0,1 %)
- Cadmium (0,01 %)
- Hexavalent chromium (0,1 %)
- Polybrominated biphenyls (PBB) (0,1 %)
- Polybrominated diphenyl ethers (PBDE) (0,1 %)

Please provide information as to the presence of RoHS substances in the products/applications mentioned in section 3 of this document. In your response please consider the following questions. You may use the table template provided below for this purpose.

a. Please specify what RoHS regulated substances are present in the product/applications specified above, including information as to concentration values and quantities of substance in the homogeneous material and per product.

The restricted material of most significant concern is **lead**:

Compression Ignition Engines:

- Lead in solder of the Monitoring Instruments is likely to be above the restricted 0.1wt% threshold at homogeneous level,
- Lead in solder in engine control electronic systems exceed the 0.1 wt% threshold at homogeneous level.
- Likewise lead in the engine bearing and bushing components of the Combustion Engine is also likely to exceed the 0.1wt% threshold.

Spark-ignition engines:

- Lead in solder for the spark-ignition system and
- Engine control electronic systems exceed the 0.1 wt% threshold.
- Lead in metal alloys for engine body
- Lead as impurity in recycled plastics

The reason for the use of lead is the high temperature range and the vibration of the engine and the resulting high strength requirement for the solder joints.

For example, the development and design of electronic controls for many engines is extensively based on adaption of existing engine controls and engines for heavy-vehicles (>16 ton). Owing to this synergy of generating set and heavy-vehicle development , ranges of robust engine designs for long operating life-time are enabled on the market for critical needs (like e.g. in hospitals and as backup for the electrical power grid) that are derived from both road and non-road engines. Heavy-vehicle engines will continue to use reliable tin-lead soldering after 2019 due to the lack of technically feasible alternatives. The same technical reasons should also be applicable to generating sets and electrical spare parts for these. An enforced phase-out of tin lead solder and lead in bearings would in practice lead to a lack of reliable generating sets with a considerable negative impact.

Lead is also used in the starter batteries of internal combustion engines. In the End of Life Vehicles directive covering engines in automobile use starter batteries containing lead are exempted as there currently is no suitable alternative for the specific application of use.

The amount of lead in the component/product or article level is much less than 0.1wt%.

	Products powered by internal combustion engines.
Presence of RoHS regulated substances (% weight & quantity of substance)	Lead >0.1% at homogeneous level
Components and parts of relevance	-Solder of generator set monitoring instrument -Engine bearings in combustion engine - Solder for spark-ignition systems - Engine control electronic systems - Starter batteries - engine body - plastic parts made from recycled material

Hexavalent Chromium in current equipment and future spare parts:

Corrosion protection for certain engine parts. Currently, engine manufacturers are working on replacing hexavalent chromium; however, in many cases spare parts will probably not be redesigned.

b. Please specify in which components or product parts RoHS regulated substances are present.
See answer above.

5. Substitution of RoHS substances in EEE newly in scope
For a product or application to be defined as compliant with the RoHS substance restrictions:
 either the use of RoHS regulated substances must be avoided (either through substitution or elimination[4]); or

 the application must be listed in Annexes III or IV of the RoHS Directive providing an exemption for the use of the RoHS substance in certain cases for a limited period of time.

Please provide information as to the efforts towards compliance that are underway or that are planned for the products/ applications mentioned in section 3 of this document. In your response please consider the following questions. You may use the table template provided below for this purpose.

a. Please provide information as to the availability of possible alternatives (substance or technological) on the market.

Research is continuing into the substitution of non-hazardous materials in various components. For certain components the result of this research may not be known for some years. It is possible that no suitable alternative that gives acceptable durability may exist, e.g. for equipment brought into scope by virtue of their exemption from the large scale exclusion through non-permanent location and lead in solder in items such as:

- Engine control units
- Spark ignition systems
- Sensor units, etc.

Currently, we are also not aware of any suitable alternative for lead in starter batteries.

b. Please elaborate as to their possible use in the products/ applications mentioned in question 3 in terms of the efforts towards compliance.

Currently research is ongoing. Where suitable alternatives are found , these will be incorporated after sufficient and detailed testing (e.g. to ensure reliability and durability of the product).

c. Please state if the use of possible alternatives would result in a change of product characteristics, and explain what changes may be relevant in this respect.

Uncontrolled substitution of substances can cause changes in e.g. function, geometry or thermal durability. In order to ensure product safety while also following the required approval procedures, modified product components may need to be intensively tested both as individual parts and often also in the assembly together with other associated components. For safety relevant spare parts a re-validation has to be based on the original product which in most cases has ceased production years ago and thus is not available anymore. Also to be taken into account is the high number of samples required to perform all necessary testing which stands in strong contradiction to the fact that the amount of available spare parts is usually decreasing over time.

Also to be considered is that spare parts would have to be potentially redeveloped (and tested) several times, whenever a new substance is being scrutinized under RoHS (and REACH) and used in the component.

Furthermore, indications are that present alternatives for some components particularly in large scale products results in an unacceptable reduction in service life. Where otherwise large scale products are eliminated from the Large Scale Exclusion clauses by virtue of non-permanent installation, etc., non-availability of compliant parts may result in the product becoming impossible to repair within its normal service life. This could severely restrict the market in these types of products, negatively impacting trade and potentially resulting in additional waste recycling, without a significant positive impact on the environment.

This is also true for other product groups and smaller equipment. For example professional lawn and garden and forest equipment manufacturers provide spare parts for at least 10 years after end of production.

d. Please explain the various phases that are being undertaken (or that are planned) in order to facilitate the compliance of products, elaborating on the time assumed to be needed for each stage. You may refer to a possible time range, explaining the uncertainties that apply.
Research by EUROMOT's members is continuing into the availability of compliant components across the entire product range newly in scope of RoHS; however, this extends to many hundreds of products, many with variants.

Although members have stated their intention to comply by the end of the transitional period, present indications are that some products may not be capable of complying.

6. Impacts of compliance
Please estimate what costs and/or benefits your organisation, other stakeholders and / or society may have if one of the following scenarios is to be implemented. Where relevant, please specify how these costs/ benefits are allocated between different product / applications mentioned in section 3. You may use the table template provided below for this purpose.
 RoHS 2 legal text to remain unchanged;

Not recommended. This will have a negative impact because of the limitation on secondary market operations and the lack of a spare parts provision for newly in scope EEE products in RoHS2. As indicated above, products powered by internal combustion engines are newly in scope under category 11. Some have long life cycles and are often sold on the secondary markets. The continued use of these products is economically and ecologically desirable. Prohibiting the resale of such products will negatively impact society and the environment by creating waste instead of a saleable asset, and will harm business by impacting the price of the original sale.

 Amendment of Article 2(2) to exclude Category 8 and 9;

Not recommended. Exclusion of category 8 and 9 does not relieve the most significant burdens on the industry and deals only with a small section of environmental and economic impact.

 Incorporation of Article 2(2) into Article 4(3) with the 22.7.2019 as compliance date, thus allowing secondary market operations for non-conform products newly placed on the market before July 2019; -
EUROMOT recommends this strategy. This brings a single date enabling alignment of all EEE compliance with reduced impact to the environment.

 Incorporation of Article 2(2) into Article 4(3) with an earlier compliance date (to be agreed upon with the EU COM), thus allowing secondary market operations for non-conform products newly placed on the market before the respective date;
Not recommended. This would artificially shorten the time needed to ensure compliant parts. In some cases significant R&D work is required.

 The addition of a spare part provision for non-conform products newly coming into scope and placed on the market before 2019
EUROMOT recommends this strategy. This strategy will help to clarify and support the needs of products with a long life cycle as well as secondary markets that are an integral part our business. There are potential and likely negative impacts of failing to add a spare parts provision for products coming into scope and placed on the market before 2019. In general, equipment based on internal combustion engines have a much longer service life than consumer products, and it is also very common for these products to have multiple owners during the service life of the products. Thus, if secondary market operation and spare parts provisions are not included, this can result in more

waste and a negative impact on the environment because the products cannot be resold or reused by a second owner and/or cannot continue to be serviced or repaired due to a lack of available spare parts.

In this regard please detail:
a. Possible costs for your organisation or other stakeholders tied with compliance of a specific product category, in relation to the above mentioned scenarios - one.time costs such as investments as well as annual costs, such as costs for purchasing resources)

Engines power many different product groups and markets. Getting cost data on this diverse group of products will be challenging.

b. Possible benefits that may incur to your organisation or other stakeholders in relation to the above mentioned scenarios – please clarify when or over what period benefits are expected.

Addition of a spare part provision for non-conforming products coming newly into scope and placed on the market before 2019 will have positive impacts for both manufacturers and those involved in the secondary market as well as reducing burden on the environment due to early-life scrappage of otherwise serviceable products.

c. Possible impacts to health and to the environment associated with the scenarios mentioned above

Impact to health and environment caused by including a spare parts provision will be largely positive. EUROMOT's task force has established that only very small amounts of hazardous substances are contained within the parts even for large scale products that are not excluded and even then, because of the high scrap metal value of these products, they are not subjected to uncontrolled disposal.

d. Possible impacts on employment that may be associated with the scenarios mentioned above (impacts on required skills; impacts on number of employees; etc.)

Adoption of a spare parts policy for non-compliant products introduced during the transitional period will have a positive impact on employment and skills, effectively re-opening the channels for reconditioning of products such as engines and the equipment powered by the engine.

e. Possible impacts on competition that the various scenarios may have in regard to your organisations general activities or those tied with a specific product category. Please elaborate in this regard concerning impacts on import and export of products/ applications.

In respect of the potential alignment of date for products, this will remove confusion and create a more level playing field. The same is true for adopting a spare parts policy for products introduced during the transitional period.

f. Possible impacts on the supply of certain products or components that are relevant to the various scenarios detailed above.

See above.