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JBCE's views on the restriction proposal on MCCPs

Being a cross-sector association with member companies operating in different industries and stages in the supply chain, JBCE welcomes the opportunity to submit its views on the restriction proposed by the annex XV report for Medium-Chain Chlorinated Paraffins (MCCP) and other substances that contain chloroalkanes with carbon chain lengths within the range from C14 to C17.

1. Introduction

Chemical substances enrich human life when properly used appropriately and knowledgeably. JBCE strongly supports the concepts and objectives of REACH and CLP to contribute to human health and the environment. JBCE also believes that a risk management approach should be used when regulating chemical substances. This is fundamental to feasibility and practicality when considering international supply chains. As for the feedback to the restriction proposal on MCCPs, JBCE would like to share its views and insights below.

2. Details

2.1 Applications

Medium-Chain Chlorinated Paraffins (MCCPs) are a mixture of chlorinated hydrocarbons with a chain length of 14 to 17 carbon atoms that are flame retardant, hydrophobic, plastic, insulating and lubric for metals under high pressure. They are commonly used as flame retardants in plastics and plasticizers in polymers (e.g. PVC), as well as lubricants and coolants for metal molding. We would like to concentrate on the following two applications: (a) flame retardants and (b) lubricants for metal molding.

(a) Flame retardants

The reason why MCCPs as organic halides are used as flame retardants is that they act as scavengers for hydroxy radicals, which play a role in promoting the combustion reaction of polymers. This is because hydrogen halide, which has a low bond energy, is easily decomposed. It is generally accepted that the order of flame retardancy is Iodine, Bromine, Chlorine, and Fluorine. In fact, the dissociation energy of the carbon-bromine bond is smaller than that of the carbon-chlorine bond. The effect of an organo-bromine compound as a flame retardant is superior to a chloride's. So far, bromine- and chlorine-based compounds have been the practical choice because of their performance and cost price. As the hazards of organic halogen-compounds are already recognised, the chemical industries have made efforts to share the information in their value-chains and to accelerate new product development to replace them with appropriate alternatives.

(b) Lubricants for metal molding

MCCPs are also used as specific additives for extreme pressure lubricants. Extreme pressure lubricant is used as a special lubricant in conditions that cause seizure and scuffing (a part of the cylinder or piston melts and breaks due to repeated friction). Under these lubrication conditions scratches occur easily on the surface even though is protected by lubricating oil. However, such a scratch can cause the engine to stall. If it progresses, it will also lead to seizure. Additives for extreme pressure lubricants are used in metal molding, in lubricated conditions where the contact pressure on the friction surface is very high and oil film breakage is likely to occur. Organic sulphur, phosphorus, and halogen compounds are used as the specific additives. The typical concentration is 5-10 %.

Examples of products for which there are manufacturing processes using such metal processing fluids include parts and modules of mobilised devices, of equipment powered by a motor (including vehicles/cars, motorcycles, airplanes, ships, agricultural machinery, construction machinery and industrial machinery), and of medical, semiconductor, electrical electronic equipment (EEE) and batteries.

In stainless steel processing, chlorine in MCCPs is believed to break the surface passivation and form a very thin fluid film. Although the industries have continued to study the phenomenon and consider future alternatives, the use of MCCPs as additives in metal processing and working fluids is very difficult to replace completely. There are cases in which small and medium-sized companies in Europe might be responsible for metal processing and working for automotive and important machinery industries. In view of the socio-economic impact in Europe, we would like to suggest that ECHA consider the appropriate exemptions or a sufficient transition period, whilst taking into account the potential impact.

2.2 Alternatives

We understand the importance of developing alternatives for MCCPs without halogens for both flame retardants and the additives for lubricants. However, it is not sufficient to develop just one, excellent, functional material. It is necessary to conduct an extremely wide-range evaluation since both flame retardants and lubricants are important performance factors which could affect product life cycles. It does not suffice to evaluate and guarantee everything using one or two sample working(s). Sufficient feasibility studies are needed to avoid “regrettable substituents”. Sulphur-based, extreme pressure additives and LCCPs, which are the existing alternatives, are technically incompatible with the heavy machining performed in lubricated conditions where the contact pressure on the friction surface is very high and oil film breakage is likely to occur. LCCPs also contain MCCPs as a by-product. Since the alternatives for sulphur-based extreme pressure lubricants and LCCPs are insufficiently efficient, we need to further study other alternatives. Unfortunately, the industry has not yet found effective alternatives. Even if a candidate substance were found, enough time (e.g. over 10 years could be needed in some cases) would be required to validate the alternatives. (e.g. feasibility study in lab: 2 years, evaluation in lab: 1-2 years, scale-up: 2 years, evaluation for end product: over 2 years, quality assurance: over 2 years). It is furthermore necessary to check the alternatives in a very wide range of applications.

2.3 Socio-Economic Impacts

The costs of finding alternatives, evaluations, replacements are enormous due to the impact on a wide range of industries. Many alternative products might cost more than conventional products. Or the inability to deal with failures of equipment and parts of equipment related to old infrastructure facilities. The production of parts and/or components would also be delayed. The results could include deterioration of agricultural and forestry productivity due to the unavailability of old agricultural and forestry machinery, declining medical services in diagnosis and treatment. In addition, the productivity in many manufacturing industries that produce parts for industrial machinery and transportation machinery could decline. There are concerns that many industries including small and medium-sized industries in the EU will be affected.

2.4 Derogations

(a) Spare parts derogation

JBCE strongly believes that spare parts for electrical and electronic equipment (EEE) placed on the market before the implementation of the restriction should be excluded without an expiry date harmonizing the Article 2(4) of the RoHS Directive (2011/65/EU). If spare parts are not exempted, EEE cannot be repaired and consequently the lifespan of EEE will be shortened. As a result, the volume of EEE waste will rapidly increase, which is undesirable with an eye to the circular economy.

Furthermore, we believe that these measures are needed not only for EEE but also for motor vehicles, industrial machines for use in agriculture and construction, marine, garden and outdoor power equipment, including forestry machinery, aerospace and defence applications, medical imaging and radiotherapy devices. Appropriate consideration needs to be given to each application.

(b) Longer transition period and legacy approach for medical devices and monitoring and control devices

Medical devices including in vitro diagnostic medical devices as well as monitoring, control and analytical devices have longer lifespans and longer design cycles, and consequently they need a longer transition period. In fact, it is for this reason that the RoHS Directive gives longer transition periods for these devices compared to other B2C electric and electronic devices. These devices contribute to society through, for example, diagnostics (e.g. PCR tests), measuring hazardous chemicals, environmental monitoring (e.g. air pollution, water quality), safety monitoring (e.g. fire warning, product safety) and innovation (e.g. development of new pharmaceutical products). If the transition period is too short, these devices cannot be placed on the EU market and consequently it will negatively impact society. The concept of a "legacy approach" is especially useful for devices with a long lifespan: it allows the legacy products – whose Declaration of Conformity was issued before the introduction of a substance restriction – to be placed on the products until the end of their model life. The model change for these products will happen every 7 to 10 years. In order to produce these devices for this production period, the manufacturers are sometimes forced to buy a large number of parts and components before they become obsolete. These parts and components go to waste when new substance restrictions are introduced. Moreover, some products such as medical devices have to go through the certification process again after the introduction of new substance restriction. This work requires financial and but above all human resources and it causes a delay in R&D activities. Introducing the legacy approach will reduce the amount of waste and human and financial resources can be efficiently devoted to R&D and innovation.

(c) Reference materials should be excluded from the scope

Reference materials and substances used in scientific research and development are necessary for the analysis of MCCPs. Without them, precise analysis is not possible. Therefore, reference materials for analysis should be excluded from the scope.

3. Conclusion

MCCPs are used in a wide range application such as flame retardants and additives with lubricants for metal molding. The existing alternatives are impossible to replace for all applications. It would take a long time to evaluate their effectiveness. For this reason, we suggest that ECHA considers granting time-limited specific exemptions for legacy parts. In addition, JBCE strongly believes that spare parts for EEE placed on the market before the implementation of the restriction should be excluded without an expiry date under Article 2(4) of the RoHS Directive (2011/65/EU). Furthermore, even though a sufficiently long transition period is needed for all applications, medical devices including in vitro diagnostic medical devices as well as monitoring, control and analytical devices should in particular be granted a long transition period for the sake of longer lifespans and longer design cycles.

About JBCE

Created in 1999, the Japan Business Council in Europe (JBCE) is a leading European organisation representing the interests of more than 95 multinational companies of Japanese parentage active in Europe.

Our members operate across a wide range of sectors, including information and communication technology, electronics, chemicals, automotive, machinery, wholesale trade, precision instruments, pharmaceuticals, steel, textiles and glass products.

Building a new era of cooperation between the European Union (EU) and Japan is the core of our activities, which we perform under several committees focusing on Corporate Policy, Corporate Social Responsibility, Digital Innovation, Environment & Energy, Standards and Conformity, and Trade.

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