Guide to the restriction process applying to diisocyanates

Fachverband Schaumkunststoffe und Polyurethane e.V.

EUROPEAN DIISOCYANATE & POLYOL PRODUCERS ASSOCIATION

EUROPEAN ALIPHATIC ISOCYANATES PRODUCERS ASSOCIATION

2. revised edition

Dear FSK Members,
We have revised and updated this guide on the use and handling of diisocyanates with regard to the REACH process.
Together with our partner associations ISOPA/ALIPA and EUROPUR, we have reviewed questions relating to diisocyanates and their safe handling in the PUR value chain.
This document outlines in particular the processes and regulatory measures under REACH which could have an impact on the production and use of diisocyanates in the future. We have sought to reflect the current status of the regulatory process. We do not rule out further changes at EU level and will keep you informed.

POLYURETHANE – a product for the future

Polyurethanes are versatile, modern and safe. They are used to produce a wide variety of consumer and industrial products that make a decisive contribution to making our lives more convenient, comfortable and environmentally friendly. Whether in rigid or flexible form, elastomers, binders or coating materials, polyurethane is used in a wide variety of applications. Thanks to its versatility and unique properties, the list of applications is long and getting longer with new innovative applications coming on to the market all the time.

Polyurethane is a product for the future. It plays a crucial role in our evolving needs, allowing us to do things that a generation ago would have seemed impossible.

DIISOCYANATES and POLYOLS – the building blocks of polyurethane

Polyurethane is a plastic (a polymer), which would not exist without diisocyanates and polyols. Together with polyols, which consist of long alkoxyether chains, diisocyanates such as methylene diphenyl diisocyanates (MDI) and toluene diisocyanates (TDI) form the basic building blocks of polyurethane. Polyurethane is formed by the chemical reaction between diisocyanates and polyols when they are mixed with each other. Foam is produced by adding water, acid or the use of physical blowing agents.

For polyurethane to meet high quality expectations and technical product specifications, dyes and additives are added to ensure the correct composition of the foam. This enables an almost endless variety of foam densities. The molecule is adapted to allow for various properties, PUR materials can be made more rigid or more flexible. Carbon dioxide for example is used as a blowing agent to produce flexible foam for a comfortable sofa. All blocks of foam are tested for compliance with European safety standards.

In rigid foam, a cell gas, e.g. pentane, can be trapped in the closed cells of the foam to optimise its insulating properties. Water can also be used as an alternative blowing agent. With their durability, corrosion and weather resistance, polyurethanes are also suitable for coating a wide variety of surfaces. Polyurethane can also be used to securely bond different materials such as wood, rubber, metal, cardboard or glass.

Polyurethane adhesives make it possible to use end-of-life tyres on children's playgrounds, sports fields or in sports stadiums after collection and shredding. Polyurethane coatings protect substrates from corrosion and weather influences and thus significantly increase their durability while at the same time conserving resources.

The FSK –
Specialist Association Foamed Plastics and Polyurethanes

Successful industries need strong specialist organisations as a platform for exchange and contacts and to represent their interests. The FSK is one of the most important specialist associations in its sector in Europe and, in its 50-year tradition, is the largest national association of the foam plastics and polyurethane processing industry.

The Specialist Association Foamed Plastics and Polyurethanes (FSK) is an association of the plastics processing industry, representing a total volume of around 10 billion euros in the polyurethanes and foamed plastics industry. The FSK is part of a network of several associations, e.g. the ARGE (specialist associations of chemicals, plastics and textiles).

The FSK is also the supporting association of the German Association of Plastics Converters (GKV).
The members of the FSK include raw material companies, machine manufacturers, system houses/formulators and above all processing companies from the material sectors polyurethane, polypropylene, polyethylene, rubber foams, melamine resin foam, PVC foam, etc.

Who are ISOPA/ALIPA and EUROPUR?

ISOPA is the European trade association of manufacturers of aromatic diisocyanates and polyols - the main building blocks of polyurethane. ISOPA promotes the highest level of best practice in the distribution and use of diisocyanates and polyols in Europe and ensures that all stakeholders can easily access accurate and up-to-date information on these substances. ISOPA is based in Brussels, Belgium, and is an affiliated organisation of the European Chemical Industry Council (CEFIC). ISOPA's members include BASF, BorsodChem, Covestro, Dow, Huntsman and Shell Chemicals.

ALIPA is the European Aliphatic Isocyanates Producers Association. It was created by the major European producers BASF, Covestro, Evonik and Vencorex in order to encourage the safe and proper use of aliphatic isocyanates.

EUROPUR is the European association of flexible polyurethane foam blocks manufacturers.
Polyurethane foams make our daily lives safer and more comfortable. They are vital to applications that we take for granted. Mattresses, furniture cushions and car seats are just some examples. As part of the global chemical industry, EUROPUR is committed to Responsible Care®. This notably means that we seek to continuously improve the environmental, health and safety knowledge and performance of our technologies, processes and products over their life cycles.

Registration

Evaluation *and*

Authorisation *of*

CHemicals

REACH & DIISOCYANATES

As important building blocks for polyurethane production, diisocyanates are subject to the REACH regulation. (Registration, Evaluation and Authorization of Chemicals).

WHAT IS REACH ALL ABOUT?

The REACH Regulation was adopted by the European Union in 2006 to improve the protection of human health and the environment against possible risks from chemicals while maintaining the global competitiveness of the European chemical industry.

As opposed to previous legislation, REACH places the burden of proof on the industry. To comply with the Regulation, companies must correctly identify and manage risks. In turn, chemical producers must demonstrate to the European Chemicals Agency (ECHA) how the substance can be used safely and communicate the risk management measures to their users.

To achieve these objectives, a number of procedures were introduced by the Regulation. The chemical industry and its associated value chains have already implemented a considerable part of this in recent years.

Registration

Since 1 June 2007 companies are obliged to collect information on the properties and uses of substances they manufacture or import in quantities of more than one tonne per year. They must also assess the hazards and potential risks posed by these substances.

Evaluation

The information provided by the companies and the quality of the registration dossiers and testing proposals are then evaluated by ECHA and the member states to determine whether a particular substance poses a risk to human health or the environment.

Authorisation

The authorisation procedure is intended to ensure that the risks arising from substances of very high concern (SVHC) are adequately controlled and that these substances be gradually replaced by suitable alternatives. Substances of very high concern are listed in the so-called „candidate list“.
This list includes carcinogenic, mutagenic and reprotoxic (CMR) substances, persistent, bioaccumulative and toxic (PBT) substances and substances of similar concern (endocrine disruptors), inhalation allergens etc.).

Restriction

Restrictions are designed to protect human health and the environment from unacceptable hazards posed by chemicals. Restrictions may restrict or prohibit the production, marketing or use of a substance. In some specific cases, such as diisocyanates, where the product has an extremely wide range of applications, the authorities may require the development of targeted measures for product stewardship. This ensures that all employees exposed to these substances are both informed and trained to control possible risks in handling these substances.

TIMELINE

2012	2013	2014	2015	2016	2017	2018	2019	....
Poland begins TDI evaluation	Poland concludes TDI evaluation							
	Estonia begins MDI evaluation		Estonia begins evaluation of MDI reaction mass	Estonia rejects restriction of MDI but seeks further information				
		Germany implements RMOA[1] for diisocyanates and proposes restriction under REACH	Germany decides to submit a dossier on restrictions, draft dossier Oct. 2015 – Oct. 2016	Germany submits restrictions dossier to ECHA	BAuA/Germany collects additional information 12 months	BAuA/Germany involved in decision-making process 3 months		
	BAuA in information exchange with associations and companies	Industry establishes PU-Exchange-Panel[2]						

REACH regulation procedures at European level:

Public consultation 6 months	Public consultation on draft SEAC[4] opinion 60 days		
Prepare draft opinion Final SEAC[4] opinion 12 months		Implementation of the restriction in the EU member states: approx. 4 – 6 years implementation period until restriction obligatory throughout Europe	
Prepare and adopt RAC[5] statement 2 months			