



Brussels, 27 October 2010

## FEICA position paper on the use of gloves for MDI containing mixtures, in particular One-Component Foam/OCF (PU Construction Foams) offered to the general public

FEICA, the Association of the European Adhesive and Sealant Industry, is a multinational association representing the European adhesive and sealant Industry. With the support of its national associations and several direct and affiliated members, FEICA coordinates, represents and advocates the common interests of our industry throughout Europe. In this regard FEICA aims to establish a constructive dialogue with legislators in order to act as a reliable partner and create a mutually beneficial economic and legislative environment.

### Background

Commission Regulation EC No 552/2009 of June 22nd 2009 (Reach Annex XVII) introduces additional protective measures for many substances on the market.

Methylenediphenyl diisocyanate (MDI) which is placed on the market after 27 December 2010 as a constituent of mixtures in concentrations equal to or greater than 0.1% by weight of MDI for supply to the general public requires specific labelling as well as protective gloves. REACH defines placing on the market as supplying or making available, whether in return for payment or free of charge, to a third party, which means that no MDI containing mixture can be sold to the general public without protective gloves and the required labelling. The original text concerning MDI is given in Figure 1:

<p>56. Methylenediphenyl diisocyanate (MDI) CAS No 26447-40-5 EC No 247-714-0</p>	<p>1. Shall not be placed on the market after 27 December 2010, as a constituent of mixtures in concentrations equal to or greater than 0,1 % by weight of MDI for supply to the general public, unless suppliers shall ensure before the placing on the market that the packaging:</p>
	<p>(a) contains protective gloves which comply with the requirements of Council Directive 89/686/EEC (*****); (b) is marked visibly, legibly and indelibly as follows, and without prejudice to other Community legislation concerning the classification, packaging and labelling of substances and mixtures: — Persons already sensitised to diisocyanates may develop allergic reactions when using this product. — Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. — This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used."</p> <p>2. By way of derogation, paragraph 1(a) shall not apply to hot melt adhesives.</p>
	<p>(******) OJ L 399, 30.12.1989, p. 18.</p>

Figure 1



As the gloves need to comply with quality requirements as described in Personal Protective Equipment Directive 89/686, a number of OCF manufacturers ordered CE marked gloves for evaluation with respect to the personal protection of the general public when using products containing more than 0.1% of MDI.

The gloves were selected to exhibit good performance against permeation of MDI, which would represent the worst and most improbable scenario of exposure. LDPE gloves were chosen as LDPE typically serves as an excellent barrier against many chemicals, including MDI.

## APPLICATION OF OCF AND EXPOSURE

Consumer exposure for this type of applications can be described as follows:

- During normal use, no OCF PU product comes into contact with gloves. The gloves serve as protection in case of accidental spillage.
- Single-use gloves are used for an application time of typically 2 to 4 minutes since the OCF container is completely empty within this timeframe.
- OCF products present a foam structure upon dispensing, so in case of spillage onto the gloves there is no liquid pressure applied to the gloves even if a consumer should completely immerse his or her hands into the foam. As a result, the penetration force remains considerably lower than in a liquid such as pure MDI.

## GLOVE TESTING

Testing is performed according to EN 374 by an approved certification body, TÜV Rheinland LGA (Leipzig), in order to confirm consumer protection against exposure to MDI.

Testing was executed as follows:

- Permeation is tested for 10 minutes, which represents at least twice the actual exposure time
- Testing is performed with pure liquid MDI.
- Glove seams are tested under air pressure as well as water pressure.
- All CE marked gloves require a random series of gloves to pass all tests.

MDI permeation of PE materials tested proved to be below detection limits.

Seams of the gloves tested, with a thickness of 0.020 to 0.025 mm, proved to be reliable under these testing conditions.

## CONCLUSION

The conclusion of the certified body is that the gloves tested provide adequate consumer protection against MDI exposure during the application of MDI containing mixtures, within a limited timeframe of at least 5 minutes, which is commensurate with the use of OCF products by the general public (as explained above).

Based on the testing results obtained, FEICA has adopted the following position:



- PE gloves that have passed EN 374 tests, such as executed by TÜV Rheinland LGA, provide reliable consumer protection against MDI exposure while using OCF PU foam products.
- By including gloves of this quality in the packaging of PU OCF foams, manufacturers comply with Commission Regulation EC No 552/2009 with respect to the required gloves according to Protective Equipment Directive 89/686 for the general public.
- The test results are also applicable for applications of MDI containing mixtures other than OCF (such as PU adhesives and sealants), as confirmed by the testing institute (TÜV Rheinland LGA).
- The gloves will have to be replaced after 5 minutes in case of product spillage onto the gloves, as prescribed by the testing report.

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