

- SCOPE: How might the likely banning of encapsulation adhesives containing a Substance of Very High Concern (SVHC) affect your business? The purpose of this article is to convey our understanding of how the likely ban of these SVHCs might affect your business if you are using chip encapsulation adhesives.

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While SVHC regulations will apply to a range of substances that are used in many industries we can only comment on *adhesives*, and particularly those used for *chip encapsulation* (see figure 1) within the electronics industry.

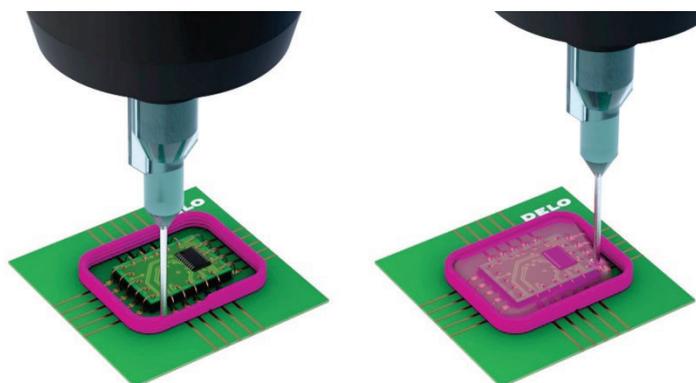


Figure 1 – Most adhesives used for chip encapsulation, such as the above ‘Dam and Fill’ process, currently contain small traces of chemicals considered SVHCs. Image courtesy of DELO.

Also, whilst in the three tables below we list adhesives manufactured by DELO Industrial Adhesives - for which we are the exclusive distributor in the UK and Ireland - the regulations discussed apply to *all adhesive manufacturers based in the European Union (EU)*.

Rest assured, we will endeavour to keep this fact sheet current through data revisions as more becomes known about the emerging regulations. As always though, if you have any questions please contact us on +44 (0)1264 334505 and ask to speak to someone in our Adhesive Division. Alternatively email us at enquiries@inseto.co.uk with the word **SVHC** in the subject field.

The Regulations

An SVHC can be a chemical element (lead, for example) but more commonly a compound (cadmium fluoride, for example) that presents a risk to health or the environment.

All SVHCs are regulated under the **R**egistration, **E**valuation, **A**uthorisation and Restriction of **C**hemicals (REACH), an EU regulation that came into force on 1st June 2007 and replaced a number of European directives and regulations with a single system.

One of REACH’s goals is to make “...the people who place chemicals on the market (manufacturers and importers) responsible for understanding and managing the risks associated with their use.”

Another aim is to allow the free movement of substances in the EU.

REACH places a ‘burden of proof’ on companies. To comply with the regulation, they must identify and manage the risks linked to the substances they manufacture and market in the EU.

Under REACH, companies have to demonstrate to the **E**uropean **C**hemicals **A**gency (ECHA) how the substance can be safely used, and they must communicate the risk management measures to the users.

ECHA’s website (specifically, this page <https://echa.europa.eu/regulations/reach/understanding-reach>) says:

“In general, under REACH you may have one of these roles:

- **Manufacturer:** If you make chemicals, either to use yourself or to supply to other people (even if it is for export), then you will probably have some important responsibilities under REACH.
- **Importer:** If you buy anything from outside the EU/EEA, you are likely to have some responsibilities under REACH. It may be individual chemicals, mixtures for onwards sale or finished products, like clothes, furniture or plastic goods.
- **Downstream users:** Most companies use chemicals, sometimes even without realising it, therefore you need to check your obligations if you handle any chemicals in your industrial or professional activity. You might have some responsibilities under REACH.”

Which substances?

The ECHA maintains and publishes a ‘candidate’ list of SVHCs which, for each substance, provides a reason for inclusion on the list and the decision taken by ECHA. The list can be viewed here <https://echa.europa.eu/candidate-list-table>

The following tables reflect the SVHC in question, present in three DELO products that Inseto supplies. The SVHC is presented as a hyperlink to its corresponding ECHA Substance Infocard.

	Contains SVHC	SVHC-free Alternative
SVHC present.	DELO MONOPOX GE785	DELO MONOPOX GE6585
hexahydro-4-methylphthalic anhydride	Yes (10 to 25%)	No (0%)
Cured properties		
• Tensile strength	55 MPa	62 MPa
• Tg	182 °C	183 °C
• CTE	22 ppm	11 ppm
• Operating temperature	-65 to 180 °C	-65 to 200 °C
Storage & Curing		
• Storage temperature	-18 °C	-18 °C
• Pot life	48 hours	72 hours
• Particle size (d95<)	65 µm	65 µm
• Minimum cure temperature	120 °C	100 °C
• Cure time	90 minutes	30 minutes

	Contains SVHC	SVHC-free Alternative
SVHC present.	DELO MONOPOX GE765	DELO DUALBOND GE7065
hexahydro-4-methylphthalic anhydride	Yes (10 to 25%)	No (0%)
Cured properties		
• Tensile strength	60 MPa	84 MPa
• Tg	186 °C	218 °C
• CTE	29 ppm	19 ppm
• Operating temperature	-65 to 180 °C	-65 to 200 °C
Storage & Curing		
• Storage temperature	-18 °C	-18 °C
• Pot life	48 hours	48 hours
• Particle size (d95<)	65 µm	7 µm
• Minimum cure temperature	120 °C	130 °C
• Cure time	90 minutes	60 minutes
Note		Light fixable

As reflected in the above tables, the recommended alternatives (i.e., SVHC-free) have many advantages over their SVHC-containing counterparts.



*DELO MONOPOX GE6585, DELO MONOPOX GE6525 and DELO DUALBOND GE7065 are SVHC-free and available now.
Photo courtesy of DELO.*

Will defence companies be exempt (allowed to use SVHCs)?

No. Unlike the electronics industry’s switch to lead-free solder, for example, the likely ban of SVHCs would apply to the manufacturers - i.e., “you [the manufacturer] must no longer make and supply...” - rather than users being told they cannot use the substances. In essence, the SVHC-containing adhesive made in the EU would no longer be available for anyone to use.

Now that the UK has left the EU, how will that affect things?

Based in the EU, DELO will have to follow EU legislation. Anyone - whether based inside or outside the EU - wanting to buy and use an adhesive that contains an SVHC will therefore be affected if EU-based manufacturers are instructed to cease production of SVHC-containing adhesives.

Our advice

Do not panic. ECHA typically gives good notice (about 18 months) with respect to new legislations coming into force.

We have provided this Knowledge Base fact sheet to keep you advised on the *likely* changes regarding the use of SVHC-containing adhesives.

Also, we wanted to inform you that SVHC-free alternatives are already available. By listing them above, you can assess their suitability for your applications.

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EAMONN REDMOND
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PATH: Adhesives – Likely Changes to Chip Encapsulation Adhesives