The Andur Report

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The Relationship of Compression Set and Temperature

The physical property of compression set is used a lot in the polyurethane cast elastomer industry. It is the measure of a material to recover after being under a specific load or deflection at a specific temperature and time. It is reported as a percentage with 0% being 100% recovery and 100% corresponding to no recovery. Almost always the standard test is run for 22 hours at 70°C. Likely the 70°C test temperature comes from some of the application temperatures that the test method was developed for so that materials could be compared and contrasted. Not a lot of data is available for other temperatures or times.

A project was started to look at what the relationship of temperature and compression set. Since many applications are either at room temperature or slightly above, materials that have poor compression set at 70°C might not get used in an application that has compression involved.

The results of that study are shown in the tables to the right. Basically, it was found that at room temperature, a material has one third to one half its 70° C value. A range of temperatures was looked at in both PPG and polyester prepolymers cured with MBOCA.

Temp (°C)	8000AP	9500AP	6500DP
21	6%	9%	15%
40	12%	16%	26%
50	19%	20%	31%
60	22%	25%	34%
70	24%	30%	38%
100	68%	65%	77%

Temp (°C)	8APLM	5DPLM	6DPLM
21	8%	8%	21%
40	15%	17%	34%
50	20%	19%	38%
60	22%	23%	41%
70	32%	29%	44%
100	91%	74%	68%

New Product Line: Polycaprolactone-based LFTDI Prepolymers

ANDUR CL Products

Anderson Development is now offering LFTDI prepolymers based on a polycaprolactone backbone. These new prepolymers have enhanced hydrolytic stability over a standard polyester prepolymer as well as being lower viscosity. They give 1.5 to almost 3 times the split tear strength and nearly equivalent resilience of a PTMEG-based prepolymer of the same hardness. This makes them a good choice in cases where the properties of a polyester are needed, but also the good hydrolytic stability and improved dynamic performance of a PTMEG.

Three products are being offered at the present time, based on market demand. They are listed to the right.

Andur CL 6-0 APLF
%NCO = 3.1%-3.6%
Hardness = 57A-63A

Andur CL 9-0 APLF
%NCO = 4.45%-4.85%
Hardness = 88A-92A

Andur CL 5-5 DPLF
%NCO = 6.4%-6.8%
Hardness = 53D-57D

Datasheets for each are available upon request.

REACH Q&A

REACH: SVHCs and Authorisation

Q: How are Substances of Very High Concern (SVHCs) identified?

A: A substance may be identified as an SVHC when EU Member States or the European Chemicals Agency (ECHA) complete an Annex XV dossier to propose that a substance be identified. Once a substance has been identified as a SVHC, it is added to the Candidate List on the ECHA website. Currently the Candidate List contains 151 substances. **MOCA is currently on this list and therefore is an SVHC.**
Substances that are identified as SVHCs are those that meet the following criteria given by Article 57 of Regulation (EC) 1907/2006 (REACH): Carcinogenic, Mutagenic or toxic to Reproduction (CMR), as identified in Directive 67/548/EEC (DSD) or Regulation (EC) 1272/2008 (CLP). Persistent, Bioaccumulative and Toxic (PBT) or very Persistent and very Bioaccumulative (vPvB) according to REACH Annex XIII. Substances identified to cause serious effects to human health and the environment of an equivalent level of concern as those above (e.g. endocrine disrupters)

Q: If a substance is listed on REACH Annex XIV, how long can I continue to use the substance without Authorisation? A: Substances listed on Annex XIV have an application date and a sunset date. All applications for Authorisation of certain uses must be submitted prior to the application date. However, should you choose not to submit an application, a manufacturer or importer can only continue to use the substance until the sunset date. **MOCA IS NOT YET ON ANNEX XIV.** After the sunset date, an Authorisation will be required before placing the substance on the EU market for a particular use.

Q: If a substance is on the Candidate list of SVHCs, do I have to fill out an application for Authorisation? MOCA IS ON THIS LIST.
A: Substances are placed on the Candidate list of SVHCs after an Annex XV dossier has been completed and the substance has been identified as meeting the criteria of a Substance of Very High Concern. An application for Authorisation is not required until the substance has made its way onto the REACH Annex XIV list of substances subject to Authorisation. However, if a substance is on the Candidate list, there is an obligation to communicate down the supply chain when a product contains an SVHC in a concentration greater than 0.1% by weight. Also, if manufactured or imported in quantities of 10 metric tonnes or more per year, there are obligations to complete a chemical safety assessment and submit a notification to ECHA. Special attention is required for products that are considered Articles without intended release of substances.

Q: Where can I find more information about ECHA's future plans to add more substances to the Candidate List and REACH Annex XIV?

A: ECHA recently added a new section to its website which will provide **stakeholders and the general public regularly updated information on how ECHA, the EU Commission and the EU Member States plan to implement the SVHC Roadmap all the way to 2020.**

References:

Candidate List of SVHCs

http://echa.europa.eu/web/guest/candidate-list-table

ECHA - Addressing Chemicals of Concern: Authorisation

http://echa.europa.eu/web/guest/addressing-chemicals-of-concern/authorisation

ECHA - Support: Authorisation - SVHC Identification

http://echa.europa.eu/web/guest/support/authorisation/substancesof-very-high-concern-identification

ECHA - Applying for Authorisation

http://echa.europa.eu/web/guest/applying-for-authorisation

This article was taken from PMA Polytopics—Quarter 2—2014, page 10.

These regulations apply within the European Union member states. I also applies to countries outside the EU that export articles containing MBOCA into the EU if the article contains greater than 0.1% by weight of unreacted residual MBOCA. Please contact us if you have any questions regarding this.

FDA Approvable Curative Products Review

When comes to FDA rules for dry or aqueous food contact, things get tricky in what you can and can't use. Concerning curing agents, there is not a whole lot of choices.

Basically, for TDI-based prepolymers, only dry food contact is approvable. Two diamines are okayed for dry food contact, methylene dianiline (MDA), which isn't used much due to health concerns, and trimethylene glycol-di-p-aminobenzoate, which is more commonly known as Versalink® 740M or Vibracure® A157.

Several hydroxyl curatives that can be used are TMP, Curene 64 (TIPA), Curene 49 (TMP/TIPA), Curene 45 (1,4 BDO), and HQEE.

For aqueous or fatty food contact, the only choices are MDI systems based on PTMEG or a butylene adipate polyester both cured with 1,4 butanediol or a 1,4 butanediol blend with a polyol of the same composition as the prepolymer backbone.

Versalink® is a registered trademark of Air Products and Chemicals, Inc.

Vibracure® is a registered trademark of Chemtura Corporation.

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Mission Statement

Anderson Development will be a global supplier of innovative specialty chemical products, striving for continual improvement in all of our operations. It is our goal to be personal, efficient, and responsive to our customers and employees. We will provide a team-oriented atmosphere while allowing for individual diversity among our employees.

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