

VISIOMER® LACE Methacrylates for Ultra-Hydrophobic Performance in Waterborne Coatings

VISIOMER® METHACRYLATE LACE MONOMERS

In recent years, more and more market attention has been focused on water-resistant, water-based coatings. VISIOMER® Long Alkyl Chain Ester (LACE) methacrylates are hydrophobic monomers that can impart ultra-hydrophobic properties. General features are:

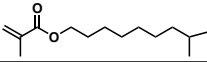
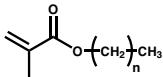
- Very good water resistance because of the hydrophobic nature of VISIOMER® LACE monomers
- Flexible at very low temperatures because of the low glass transition temperatures of VISIOMER® LACE monomers
- Higher block point (non-tacky at room temperature or even elevated temperature) due to the wax-like properties of VISIOMER® LACE monomers

The product range covers the branched methacrylic ester VISIOMER® IDMA as well as the linear methacrylates VISIOMER® Terra C13-MA, Terra C17.4-MA and C18-22-MA. Further characteristics of these monomers are shown in Table 1.

VISIOMER® TERRA METHACRYLATE MONOMERS BASED ON BIO-RENEWABLE RAW MATERIALS

The partially bio-based products in our standard portfolio are grouped under the product family VISIOMER® Terra to emphasize their origin in bio-renewable raw materials. Sustainability is one of our guiding principles. Our motivation is both to use bio-renewable raw materials and to offer added value for the end applications.

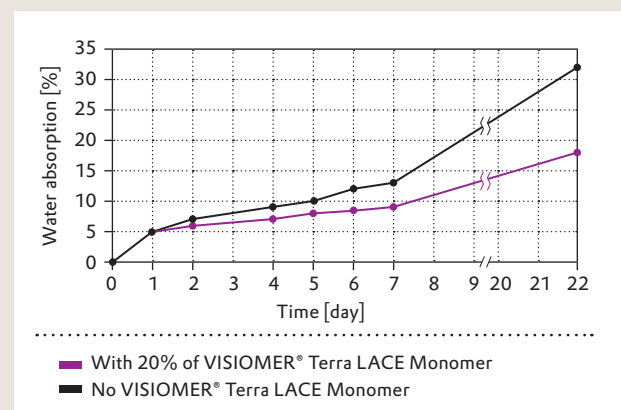
TABLE 1: VISIOMER® LACE methacrylate portfolio

MONOMER	FORMULA	SIDE CHAIN LENGTH DISTRIBUTION n	GLASS TRANSITION TEMPERATURE T _g [°C]	MELTING POINT [°C]
VISIOMER® IDMA CAS No. 29964-84-9		-	-30 °C	-
VISIOMER® TERRA C13-MA CAS No. 90551-76-1		12-16	-47 °C	-
VISIOMER® TERRA C17.4-MA CAS No. 90551-84-1		14-18	-22 °C	33 °C
VISIOMER® C18-22-MA CAS No. 32360-05-7 45294-18-6, 16669-27-5		18-22	-23 °C	49 °C

VISIOMER® METHACRYLATE LACE MONOMERS FOR ULTRA-HYDROPHOBIC PERFORMANCE IN WATERBORNE COATINGS

Our VISIOMER® LACE monomers were incorporated into a standard acrylic emulsion formulation (e.g. VISIOMER® TERRA C13-MA). The resulting emulsions show good thermal stability and soft polymer properties with small particle size and a narrow particle size distribution. The emulsion films were tested for their water uptake and whitening properties in comparison to an emulsion without LACE monomers.

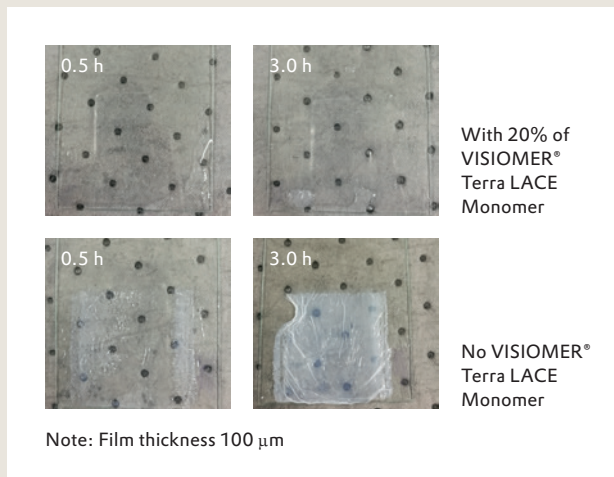
FIGURE 1: Water absorption over time of emulsion films with and without LACE monomer



The VISIOMER® LACE-containing emulsion shows significantly reduced water absorption in comparison to a sample without LACE monomer (Figure 1).

The hydrophobic nature of **VISIOMER® LACE** monomer-containing films is additionally demonstrated by the improved whitening performance (Figure 2).

FIGURE 2: Whitening performance of emulsion films



The whitening recovery speed increases with the addition of the hydrophobic **VISIOMER® LACE** monomer as shown in Figure 3. Our tests show that **VISIOMER® LACE** methacrylates are valuable building blocks for developers to create new ultra-hydrophobic emulsions.

VISIOMER® METHACRYLATES: THE FIRST CHOICE FOR METHACRYLATE SOLUTIONS

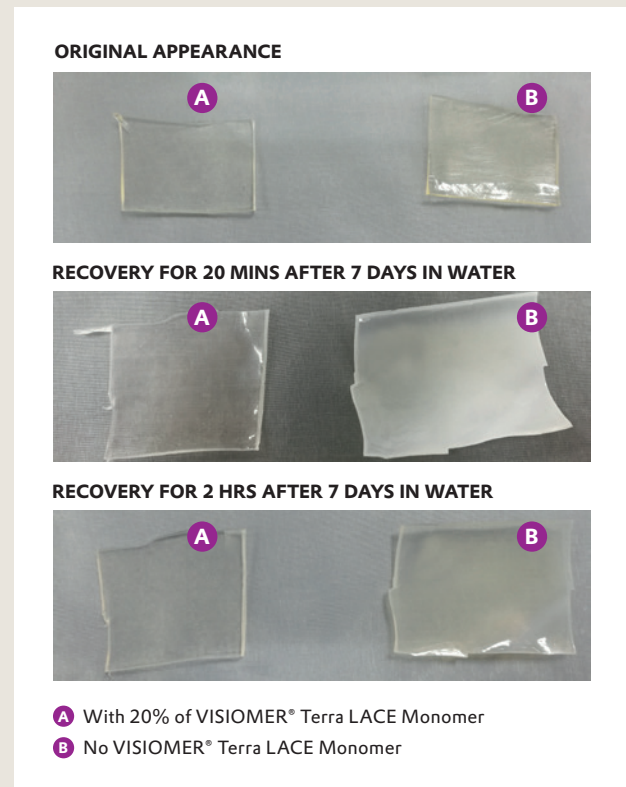
Specialty Methacrylates looks forward to supporting you in finding the best solution for your challenges in hydrophobic water-based coatings. Contact us for further information on the products described above.

Disclaimer

This information and all further technical advice is based on our present knowledge and experience. However, it implies no liability or other legal responsibility on our part, including with regard to existing third party intellectual property rights, especially patent rights. In particular, no warranty, whether express or implied, or guarantee of product properties in the legal sense is intended or implied. We reserve the right to make any changes according to technological progress or further developments. The customer is not released from the obligation to conduct careful inspection and testing of incoming goods. Performance of the product described herein should be verified by testing, which should be carried out only by qualified experts in the sole responsibility of a customer. Reference to trade names used by other companies is neither a recommendation, nor does it imply that similar products could not be used.

* = registered trademark
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FIGURE 3: Film recovery after immersion in water



OUR PROMISE TO YOU

- We are your methacrylates experts for specialty monomers.
- We are at your service with a globally available sales and applied technology organization.
- We are your solution provider with tailor-made products and joint research & development projects.
- We support your growth through a reliable and flexible global production & technology network.
- We are looking for a long-term partnership and mutual value creation.

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