

# Product data Sheet

## Fluorolink MD 700

Fluorolink MD 700 is a perfluoropolyether (PFPE)-urethane dimethacrylate.

(Meth)acrylates are the most common types of monomers used in UV curable coatings thanks to their excellent physical properties, low cost, ease of use and high cure speed.

Fluorinated (meth)acrylates are particularly preferred in applications such as telecommunications where a low absorption loss and a low Refractive Index are of primary importance.

The PFPE-urethane dimethacrylate Fluorolink MD 700 combines the inner properties of PFPE-(meth)acrylates (low Refractive Index, a low degree of shrinkage upon UV-curing and a high level of cure) with a polar structure, which enhances its miscibility with hydrogenated acrylates and the compatibility with the photoinitiator; the hydrogen bonding of the urethane moieties also provides a higher mechanical strength in the cured coating.

Typical properties of **Fluorolink MD 700** are as follows:

Properties	Typical Values
Appearance	Clear Liquid
Refractive Index	1.337
[F] (% w/w)	52
Dynamic Viscosity (25 °C)	581 cP
Molecular Weight	ca.2000 gmol <sup>-1</sup>

### BENEFITS

Since the Fluorolink MD 700 can be readily blended with conventional acrylate monomers, it finds application in many different fields: when it is used as the main component of the photocurable composition, it is suitable as a starting material for producing low loss polymeric waveguides, cladding of optical fibres and highly efficient release liners for aggressive Pressure Sensitive Adhesives.

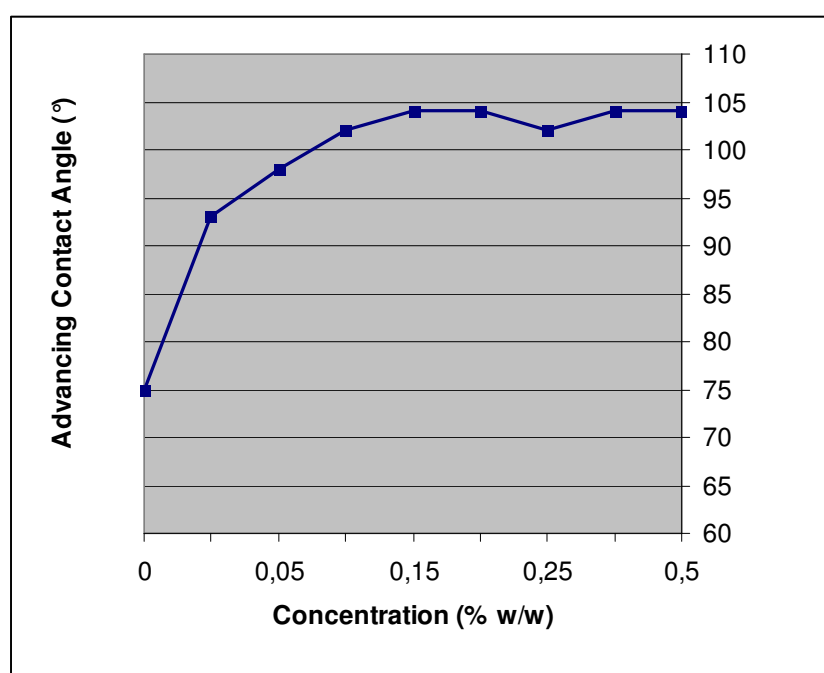
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Fluorolink MD 700 is also suitable as a photocurable adhesive for connecting optical devices, and as starting material for topcoats having antireflective properties, scratch/abrasion resistance, low dirt pick-up and outstanding chemical resistance to solvents.

Fluorolink MD 700 can also be used as a surface modifying additive at very low levels (0.1-0.5% w/w) in conventional acrylic UV-curable systems: in fact, thanks to its tendency to migrate to the air-polymer interface, Fluorolink MD 700 increases the water/oil repellency and lowers the surface tension of the cured film.

The following graph shows how a low content of Fluorolink MD 700 is able to increase the water repellency of a photocurable composition containing Ebecryl 150, a typical Bisphenol A bis(ethyl acrylate)ether, and 4% w/w of 2,2-dimethoxy-2-phenylacetophenone:



## HOW TO USE

A typical solventless formulation is reported below, where a standard commercial photoinitiator is suggested:

- > Mix the Fluorolink MD 700 with 2-4% w/w of a photoinitiator (suitable photoinitiators are Darocur 1173 or mixtures of Darocur 1173 and Darocur 4265, available from Ciba Specialty Chemicals). 4% w/w of the photoinitiator is recommended for very thin films (10µm thick).
- > Spread the mixture by a spreading-film bar on the substrate to obtain a film of the desired thickness

- > Maintain under inert nitrogen atmosphere and irradiate from a distance of 10 cm for 30 seconds with a medium pressure vapour mercury lamp, power 500W (specific power 80 W/cm).

Other photoinitiators may be employed depending on the specific application.

To enhance the adhesion to glass and plastic substrates, the Fluorolink MD 700 can be blended with 1-2% w/w of 3-methacryloxypropyltrimethoxysilane.

Even if the product shows an excellent shelf-life, it is recommended to avoid long and direct exposure to strong light sources.

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