RAYLOK® 5021

Technical Datasheet

INTRODUCTION

RAYLOK® 5021 is an UV curable high performance product for electrical sleeves coatings.
RAYLOK® 5021 is based on a special aromatic urethane acrylate diluted with around 12% of dipropylene glycol diacrylate (DPGDA) monomer. RAYLOK® 5021 exhibits good curing properties under ultraviolet light (UV) after the addition of photo initiators. Cured films based on RAYLOK® 5021 show excellent flexibility, electrical and thermal insulating properties, and are especially suited for automotive applications.

PERFORMANCE HIGHLIGHTS

RAYLOK® 5021 is characterized by:
- light colour
- high viscosity

UV/EB cured coatings based on RAYLOK® 5021 are characterized by the following performances:
- excellent flexibility
- excellent electrical insulation
- very good thermal ageing
- very good chemical resistance

The properties of RAYLOK® 5021 are excellent. These properties may decrease by the introduction of other formulation components, such as reactive diluent(s) or other additives.

SUGGESTED APPLICATIONS

RAYLOK® 5021 is recommended for use in:
- clear coatings where excellent flexibility and electrical insulating properties are required
- sleeving glass fiber tubes used especially in the automotive industry.

TYPICAL VALUE

Höppler viscosity at 60°C, mPa.s	10000 - 12500
Colour, Gardner	max. 2
Appearance	normally crystalline but cloudy high viscous liquid aspect in hot climates
Tg, °C	- 40
Tm (range), °C	25 - 40

PHYSICAL PROPERTIES

Density, g/cm^3	1.14
Polymer solids, % by weight	100
DPGDA, % by weight	~12

VISCOSITY REDUCTION

RAYLOK® 5021 needs to be applied at 60 - 70°C due to its high viscosity, without further dilution. To apply it at ambient temperature the addition of diluting acrylates such as tripropyleneglycol diacrylate (TPGDA)[(1)], 1,6-hexanediol diacrylate (HDDA)[(1)] or dipropylene glycol diacrylate (DPGDA)[(1)] would in fact strongly reduce the mechanical properties of the coating and increase the hardness.
The UV curing process increases the production speed of electrical sleeves by a factor 10 compared to the conventional solvent-borne systems and on top of that is much more environmentally friendly (no solvent evaporation).
We recommend a curing equipment with two UV lamps in front of each other in order to get the same UV curing everywhere and limit as much as possible the shrinkage.

[(1)] TPGDA, HDDA and DPGDA are produced by allnex

ELONGATION AT BREAK

RAYLOK® 5021 shows an important improvement vs. existing materials for the same application:
RAYLOK® 5021 100 – 120% elongation
IRR 281 80 – 90 % elongation

STORAGE AND HANDLING

Care should be taken not to expose radiation curable products to temperatures exceeding 40°C for prolonged periods or repeated heating or to direct sunlight. This might cause uncontrollable polymerization of the product with generation of heat.
The product is highly light sensitive.
Storage and handling should be in stainless steel, amber glass, amber polyethylene or baked phenolic lined containers. Do not store this material under an oxygen free atmosphere. Use dry air to displace material removed from the container. This material should not be stored for more than 2 years.

PRECAUTION

The following is a summary of the precautions to be taken when handling this product. Please refer to the Safety Data Sheet for further details.
The toxicological properties of this material have not been fully determined. Products of this type can be expected to be eye and skin irritant and have the potential to cause sensitization or other allergic responses. Appropriate precautions should be taken to avoid eye and skin contact and to avoid inhalation of the aerosols or vapours. Consult the relevant Safety Data Sheet for appropriate handling procedures and protective equipment prior to using this or any other material referred to in this bulletin.
See Safety Data Sheet for emergency and first aid procedure.

STATUTORY LABELING

For Statutory Labeling information, please refer to Safety Data Sheet.