



DEVELOPMENTAL PRODUCT

IRR 608

Modified Polyester Acrylate Oligomer

INTRODUCTION

IRR 608 is a modified polyester acrylate oligomer diluted 30% by weight with the reactive diluent *EBECRYL*[®] 114 (2-phenoxyethyl acrylate). IRR 608 was developed for use in UV/EB cure coatings for metal requiring good adhesion, high flexibility and corrosion resistance.

PERFORMANCE HIGHLIGHTS

UV/EB cured products based on IRR 608 can be expected to have the following properties:

- Good adhesion to metal
- High flexibility
- Good corrosion resistance

The final properties of UV/EB cured products also depend on the selection of other formulation components, such as reactive diluents, additives and photoinitiators.

SUGGESTED APPLICATIONS

IRR 608 is recommended for use in UV/EB cured primer/base coats on metal requiring good adhesion and flexibility combined with corrosion resistance properties.

To obtain optimum adhesion, the acidic adhesion promoters *EBECRYL* 168 or *EBECRYL* 171 can be used in combination with IRR 608.

For UV curing a suitable photoinitiator (e.g. *ADDITOL*[®] HDMAP) must be added. The specific photoinitiator type and quantity is dependant upon line speed, number and power of UV lamps, the thickness of the coating and the use of any pigments.

VISCOSITY REDUCTION

In addition to *EBECRYL* 114, IRR 608 can be reduced in common reactive diluents such as 1,6-hexanediol diacrylate (HDODA)⁽¹⁾, isobornyl acrylate (IBOA)⁽¹⁾, trimethylolpropane triacrylate (TMPTA)⁽¹⁾, and tripropylene glycol diacrylate (TRPGDA)⁽¹⁾. Although viscosity reduction can be achieved with non-reactive solvents, reactive diluents are usually preferred because they are essentially 100 percent converted during UV/EB exposure to form a part of the coating or ink, thus avoiding solvent emissions. The specific reactive diluents used will influence performance properties such as hardness and flexibility.

TYPICAL PHYSICAL PROPERTIES

	Value
Appearance	Clear to slightly hazy liquid
Density, g/ml, 25°C	1.17
Functionality, theoretical	2
Oligomer, % by weight	70
Reactive diluent, % by weight	30
Viscosity at 25°C, cP	~21000

TYPICAL CURED PROPERTIES⁽²⁾

Tensile strength, psi	390
Elongation at break, %	75
Glass transition temperature, °C	11

STORAGE AND HANDLING

Before using IRR 608, consult the **Material Safety Data Sheet** for additional information on hazards, handling procedures, and recommended protective equipment.

The maximum recommended storage temperature for IRR 608 is 38°C (100°F). High temperature and fire conditions can cause uncontrolled polymerization with rapid evolution of heat and pressure rise, which may result in violent rupture of the storage tanks or containers. Never store in direct sunlight or adjacent to heated compartments. Containers should be kept closed and away from oxidizing agents, acids, alkalies, peroxides, free radical initiators, photosensitizers, rust, and x-ray or ultraviolet radiation. Procedures that displace oxygen from the material, such as sparging with nitrogen, should be avoided.

PRECAUTIONS

Avoid contact with skin and eyes and breathing vapors. Contains materials that may cause injury to the eyes and skin. Sensitization may occur. Skin irritation may not occur immediately and contact may go unnoticed for up to 48 hours. Solvents should not be used to clean skin because of increased penetration potential. Contaminated clothing, shoes, belts and other leather goods should be removed immediately. Incinerate contaminated leather goods, including shoes. Wash contaminated clothing thoroughly before reuse.

Please refer to the Cytec **Guide to Safety and Handling** for additional information on the safe handling of acrylates.

(1) Product of Cytec Industries Inc.
(2) Measured on a 100 µ EB cured film.