

Key Performance Advantages

- Reduced blocking
- Improved abrasion resistance
- Alternative to polyaziridines
- No byproducts



Leather Tanning

ZOLDINE[®] XL-29SE

Crosslinker for Leather Finishing

ZOLDINE[®] XL-29SE Crosslinker is a polymeric carbodiimide crosslinking agent for two-component waterborne carboxyfunctional leather finishes. These coatings are typically based upon polyurethane dispersions (PUDs) and/or polyacrylics. ZOLDINE XL-29SE is an excellent choice for high-quality leather goods including automotive leathers. It is suitable for chrome-containing and free-of-chrome leathers. ZOLDINE XL-29SE can potentially be combined with other crosslinking agents such as oligomeric isocyanates to optimize cost and performance.

Typical Properties

The following are typical properties of ZOLDINE XL-29SE; these are not to be considered product specifications.

Property	Value
Appearance	Clear, yellow to brown liquid
Total Actives	50%
Equivalent Weight (active ingredient)	410
pH	11
Special Gravity @ 20/20°C	1.028
Viscosity @ 25°C	100 centipoise
Flash Point (Closed Cup)	46°C (114°F)
Pour Point	-42°C (-44°F)
Color (Gardner)	4
Solubility	Dispersible in water (hydrolyzes)
Vapor Pressure @ 25°C	Primary active
Boiling Point @ 760 mmHg	Primary active

This document reviews basic application information for ZOLDINE XL-29SE in leather finishes, and discusses handling and packaging information. For detailed safety and handling information, please refer to the product safety data sheet (SDS).

Reactivity of ZOLDINE XL-29SE

The active ingredient in ZOLDINE XL-29SE, a proprietary polymeric carbodiimide, reacts readily with carboxy-functional materials forming N-acyl ureas. Reaction occurs with carboxylic acid groups as well as their amine-neutralized analogues. This reaction occurs slowly at room temperature with the carboxylic acid neutralized with a molar equivalent of an amine. Reaction occurs much faster at elevated temperatures, and may be completed within 30 minutes at 85°C.

Because ZOLDINE XL-29SE is subject to hydrolysis (forming urea), it should only be considered for two-component formulations. The pot life of two-component systems is maximized at pH 8.5–9.0, where hydrolysis is slowest.

Usage Guidelines

Maximum cross-linking performance is achieved using a stoichiometric amount of ZOLDINE XL-29SE to carboxyl; this use ratio may be cost prohibitive. A typical use level is 10 parts of ZOLDINE XL-29SE per 100 parts of resin solids. It may be possible to maintain adequate performance and reduce cost if ZOLDINE XL-29SE is used together with aliphatic isocyanate oligomers. Use of PUD/acrylic blends will help manage cost from the resin side (vs. PUD alone). A use ratio of 70% PUD/30% acrylic is a good starting point. It is noted that reactivity of ZOLDINE XL-29SE varies with resin, and each system must be optimized based on resin type, application conditions and performance requirements.

Formulating Considerations

ZOLDINE XL-29SE Crosslinker hydrolyzes as previously mentioned. The pot life of two-component systems should be determined to ensure suitability for the intended application and customer. During preparation of the coating, addition of straight ZOLDINE XL-29SE may cause “shocking” of the latex. This can be minimized by first diluting ZOLDINE XL-29SE one-to-one with water.

Safe Handling, Storage and Disposal

When using or storing this material, care must be taken to keep it away from heat, sparks and flame since the solvents in the product may form combustible vapors. These vapors are heavier than air and may travel a long distance and/or accumulate in low-lying areas. Similar materials to this particular product have caused allergic skin reactions in animals. Therefore, protective equipment including chemical goggles and skin protective clothing should be worn when working with this material. Contact with skin and eyes should be avoided, and skin should be washed thoroughly after handling as a precaution. Solvents in the product have established exposure guidelines and atmospheric levels of these components should be maintained below the exposure guideline.

For further information and precautions regarding the handling, storage and disposal of ZOLDINE XL-29SE Crosslinker, please consult the current safety data sheet for this product.

Product Stewardship

ANGUS encourages its customers to review their applications of ANGUS products from the standpoint of human health and environmental quality. To help ensure that ANGUS products are not used in ways for which they are not intended, ANGUS personnel will assist customers in dealing with environmental and product safety considerations. For assistance, product safety data sheets, or other information, please contact your ANGUS representative at the numbers provided in this document. When considering the use of any ANGUS product in a particular application, review the latest safety data sheet to ensure that the intended use is within the scope of approved uses and can be accomplished safely. Before handling any of the products, obtain available product safety information including the safety data sheet(s) and take the necessary steps to ensure safety of use.

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