Technical Data Sheet

PRIMAL™ E-2753 DS Acrylic Polymer

For factory applied interior wood coatings

Regional Product Availability

EMEAI

Product Description

PRIMAL™ E-2753 DS Acrylic Polymer has been designed for water-based industrial wood coatings. Desirable performance is attained especially in the areas of appearance, chemical and block resistance.

Application

PRIMAL™ E-2753 DS Acrylic Polymer is an outstanding alternative to nitro-cellulose coatings, which contain more than 70% solvents on formulation.

Characteristics of the product:

- outstanding clarity
- good water resistance
- fast hardness development
- good anti-blocking

Typical Properties

These are typical properties, not to be construed as specifications

Property	Typical Values
Appearance	Milky white liquid
Solids content	39,5-41.0%
Specific gravity	1.03
pH	8.5 – 9.5
Minimum Film Formation Temperature (visual)	30° C
Brookfield Viscosity (2 spindle 30 rpm)	150 – 1000 mPa.s
Acid number	20 mg KOH/g solid resin

Formulation Guidelines

Viscosity and pH

The viscosity of formulations containing PRIMAL™ E-2753 DS Acrylic Polymer will increase with the addition of coalescing aids and when the pH increases.

Coalescent

PRIMAL™ E-2753 DS Acrylic Polymer requires the addition of coalescing solvents to obtain good film formation. Coatings should be allowed to equilibrate before application for at least eight hours after coalescent addition to obtain representative test results.
The level of coalescent and other solvents in typical wood coating formulations based on PRIMAL™ E-2753 DS Acrylic Polymer is around 7%, calculated on total formulation. This level can be reduced down to less than 5% on formulation when blending polyurethane dispersions into the formulation.

Other Ingredients

Waxes should be carefully evaluated to avoid formulation difficulties. They should not be premixed with coalescent as this can lead to seeding and hazy films. Add waxes to the formulation just prior to the ammonia and final dilution with water. Zinc stearate will give mar resistance an additional boost at 1% solids in the formulation. In sealer formulation it improves the sandability of the film.

Sandable Primer based on PRMAL™ E-2753 DS Acrylic Polymer
Formulation PG-01-111

Ingredients	Parts by Weight
PRIMAL™ E-2753 DS Acrylic Polymer	876.0
Byk-024 Defoamer	2.0
DOWANOL™ EB Glycol Ether	36.0
DOWANOL™ DB Glycol Ether	55.0
Zinc Stearate	31.0
Adjust the pH with ammonia (14%) if required	
Total	**1000.0**
Formulation constants:	
% Solids	*35*

Gloss Topcoat based on PRIMAL™ E-2753 DS Acrylic Polymer
Formulation JC3-125C1

Ingredients	Parts by Weight
PRIMAL™ E-2753 DS Acrylic Polymer	740.0
Water	58.0
TEGO AIREX 902W Defoamer	3.0
Premix	
Water	60.0
DOWANOL™ DB Glycol Ether	47.0
DOWANOL™ PnB Glycol Ether	29.0
BYK-349 Wetting agent	3.0
AQUACER 513 Wax	25.0
ACRYSOL™ RM-825 Rheology Modifier	10.0
Water	25.0
Total	**1000.0**
Formulation constants:	
% Solids	*32*

Typical Properties

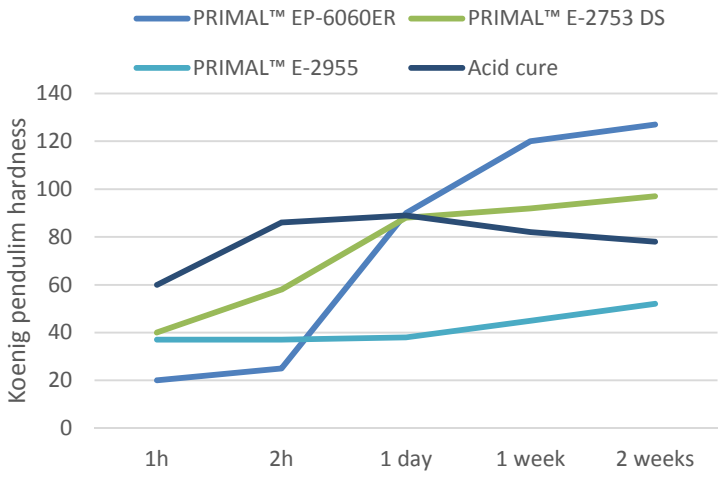
Typical Performance Properties

The following characteristics of lacquers based on PRIMAL™ E-2753 DS Acrylic Polymer were determined in our laboratory using the recommended starting point formulations.

Fast Dry

Due to their rapid drying characteristics compared to other aqueous lacquers, finishes based on PRIMAL™ E-2753 DS Acrylic Polymer attain their ultimate performance attributes quickly. The rate of hardness development is dependent on the coalescent system selected. Coated parts exhibit good early print and block resistance and can be handled shortly after the finish applied. The hardness development is illustrated in Figure I.

Figure I: Hardness development as function of drying time of the coating



Chemical resistance

Topcoats based on PRIMAL™ E-2753 DS Acrylic Polymer demonstrate outstanding resistance to water, alcohol and common kitchen staining agents. The resistance properties can further be improved by crosslinking with an aqueous polyisocyanate. The performance is summarised by category in Table 1.

Table 1: Water, Alcohol, Stain and Cleanser Resistance of Lacquers

Reagent	PRIMAL™ E-2753 DS Acrylic Polymer Scale 1-5 (5=Best)	Nitrocellulose Scale 1-5 (5=Best)
Water, 24h	5	5
50% ethanol, 1h	5	5
50% ethanol, 6h	3	5
Mustard, 5h	5	5
Coffee, 1h/6h	5/3	5/5
Acetone, 10 sec	1	1
Ammonia, 2 min	5	5
Tea, 16h	4	5

The formulations were sprayed on pine panels (100-150 g/cm2 wet) and dried in the CTR for 10 minutes followed by 10 minutes at 60°C. After cooling, 5 minutes, the second coat was applied (80-100 g/cm2).
The stain resistance test was done after two weeks drying in the CTR room.

Handling Precautions

Before using this product, consult the Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) for details on product hazards, recommended handling precautions and product storage.

Storage

Store products in tightly closed original containers at temperatures recommended on the product label.

Disposal Considerations

Dispose in accordance with all, local or national regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local or national regulations. Contact your Dow Coating Materials Technical Representative for more information.

Chemical Registration

Many countries within EMEAI require the registration of chemicals, either imported or produced locally, prior to their commercial use. Violation of these regulations may lead to substantial penalties imposed upon the user, the importer or manufacturer, and/or cessation of supply. It is in your interests to ensure that all chemicals used by you are registered. Dow does not supply unregistered products unless permitted under limited sampling procedures as a precursor to registration.

Note on EMEAI Product Line

Product availability and grades vary throughout the countries in the EMEAI area. Please contact your local Dow Coating Materials representative for further information and samples.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

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