Technical Data Sheet

PRIMAL™ TX-100 DS Emulsion

For High Performance Masonry and Stone Paints Coatings

Regional Product Availability

Europe

Product Description

PRIMAL™ TX-100 DS Emulsion is a small particle size, 100% acrylic polymer and APEO free*.

Applications

PRIMAL™ TX-100 DS Emulsion has been designed for high performance masonry and stone paints coatings. PRIMAL™ TX-100 DS Emulsion is also suitable across a broad range of pigmented paints from flat to semi-gloss. Coatings manufactured with PRIMAL™ TX-100 DS Emulsion have excellent UV resistance and outdoor durability.

PRIMAL™ TX-100 DS Emulsion is manufactured with a proprietary cross-linking technology that offers excellent adhesion on various substrates, such as brick, cement and glass. Stone paints made with PRIMAL™ TX-100 DS Emulsion offer excellent water resistance, alkali resistance, heat-age stability and early cracking resistance properties.

Key Features

- 100% acrylic polymer composition
- APEO free*
- Excellent mechanical stability and calcium ion (Ca^{2+}) stability
- Manufactured with a proprietary cross-linking technology
- Good film formation

Benefits

- Excellent water whitening resistance
- Excellent weather durability
- Excellent adhesion on cementitious substrates
- Good crack resistance

* APEO is not intentionally added and is not knowingly introduced from another raw material.

Typical Properties

These are typical properties, not to be construed as specifications

Property	Typical Values
Appearance	Milky white emulsion
Solids, by weight, %	46.5
Density (g/ml), wet	1.04
Density (g/ml), dry	1.13
pH	8.5 – 9.5
Minimum Film Formation Temperature (± 2°C)	25
Glass Transition Temperature (± 2°C)	28
Viscosity (Brookfield LVT #3, 60 rpm), cps	< 1500
Storage precautions	Protect from freezing

Formulation Guidelines

Below are some guidelines to help formulators:

Dispersants
OROTAN™ CA-2500 Dispersant is recommended for exterior application to offer optimal water resistance and limit snail trails that sometimes occur in specific weather conditions. The versatile and effective OROTAN™ 731A ER is also a very good choice.

Defoamers
DOWSIL™111F Additive was found to be efficient when used in the grind and as letdown defoamer.

Rheology Modifiers and Thickeners
PRIMAL™ TX-100 DS Emulsion is very hydrophobic and therefore very reactive to associative thickeners. For exterior coatings we recommend HEUR rheology modifiers which are less sensitive to water and provide better durability.
Combination of cellulosics and HEUR rheology modifier can be used to achieve required rheological profile.

High shear viscosity builder like HEUR thickeners like ACRYSOL™ RM-3030 Rheology Modifier or ACRYSOL™ RM-2020E were found to be the most suitable to achieve required cone & plate viscosities without increasing too much the low and mid shear viscosities. If higher low shear viscosity is required, the addition of low level of ACRYSOL™ RM-8WE or ACRYSOL™ RM-855 can be done.

Coalescents and Co-solvents
A water immiscible coalescent like UCAR™ Filmer IBT Coalescing Agent at a level of 13% on polymer solids (binder and organic opacifier if present) is highly recommended, ensuring good film formation for optimal exterior durability.

Extenders and Opaque Polymer
The use of ROPAQUE™ ULTRA E SLF Opaque Polymer can help reduce the amount of titanium dioxide, thus formulation cost without affecting dry film appearance and resistance characteristics. Additionally, it has been demonstrated that the use of ROPAQUE™ ULTRA E SLF improves gloss and color retention of exterior coatings.

Typical extenders can be used with PRIMAL™ TX-100 DS Emulsion and exterior grades of TiO_2 pigments are recommended.

Masonry Coating based on PRIMAL™ TX-100 Emulsion
MAS-TX100-45-1

Material Name	Kilograms	PVC
Grind		
Water	100.0	
OROTAN™ CA-2500 Dispersant	14.0	
DOWSIL™ 111F Additive	3.0	
Ammonia	0.7	
CELLOSIZE™ QP 4400H HEC Thickener	1.3	
Kronos 2310 Titanium Dioxide	185.0	15.9%
Durcal 5 Extender	55.0	7.1%
Calibrite SL Extender	62.0	8.0%
Talc OXO Extender	62.0	8.0%
Grind Sub-total	*483.0*	
Let Down		
PRIMAL™ TX-100 DS Emulsion	370.0	
ROPAQUE™ ULTRA E SLF Opaque Polymer	33.0	5.8%
UCAR™ Filmer IBT Coalescing Agent	23.7	
DOWSIL™ 111F Additive	1.0	
ACRYSOL™ RM-3030 Rheology Modifier	15.0	
Water	66.3	
ROCIMA™ MB2X Biocide	1.0	
BIOBAN™ 350 PST Biocide	7.0	
Totals	**1,000.0**	**44.9%**

Paint Properties

Total PVC	44.9%
Volume Solids	40.2%
Weight Solids	55.4%
Density	1.36
pH	~8.7
Dispersants (active based on total powders)	1.0%
Coalescent (based on polymer solids)	13%

Viscosities

Krebs Stormer Unit (KU)	~114
ICI Cone & Plate, P	~1.8
Brookfield (spindle 4 / 30rpm)	~8000
Brookfield (spindle 4 / 60rpm)	~6000

Masonry Coating based on PRIMAL™ TX-100 Emulsion
MAS-TX100-45-2

Material Name	Kilograms	PVC
Grind		
Water	100.0	
OROTAN™ 731A ER Dispersant	14.0	
DOWSIL™ 111F Additive	3.0	
Ammonia	0.7	
CELLOSIZE™ QP 4400H HEC Thickener	1.3	
Kronos 2310 Titanium Dioxide	185.0	15.9%
Durcal 5 Extender	55.0	7.1%
Calibrite SL Extender	62.0	8.0%
Talc OXO Extender	62.0	8.0%
Grind Sub-total	*483.0*	
Let Down		
PRIMAL™ TX-100 DS Emulsion	**370.0**	
ROPAQUE™ Ultra E SLF Opaque Polymer	33.0	5.8%
UCAR™ Filmer IBT Coalescing Agent	23.7	
DOWSIL™ 111F Additive	1.0	
ACRYSOL™ RM-3030 Rheology Modifier	15.0	
Water	66.3	
ROCIMA™ MB2X Biocide	1.0	
BIOBAN™ 350 PST Biocide	7.0	
Totals	**1,000.0**	**44.9%**

Paint Properties

Total PVC	44.9%
Volume Solids	40.2%
Weight Solids	55.4%
Density	1.36
pH	~8.7
Dispersants (active based on total powders)	1.0%
Coalescent (based on polymer solids)	13%

Viscosities

Krebs Stormer Unit (KU)	~141
ICI Cone & Plate, P	~1.6

Stone Paint Formulation:

Material Name	Kilograms
Water	76.76
PRIMAL™ TX-100 DS Emulsion	170.00
CELLOSIZE™ QP 100MH Thickener	2.00
Propylene glycol	10.00
DOWSIL™ 111F Additive	2.00
UCAR™ Filmer IBT Coalescing Agent	4.00
Butyl CELLOSOLVE™ Coalescing Agent	6.00
AMP-95	0.64
ACRYSOL™ TT-935 Rheology Modifier	0.60
KATHON™ LXE Biocide	2.00
ROCIMA™ 361 Biocide	6.00
China Red (40-80 Mesh)	300.00
Snow White (80-120 Mesh)	260.00
Snow White (40-80 Mesh)	160.00
Total	**1000.00**

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.

For more information visit us on www.dow.com

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