FASTRACK™ 53 Emulsion

For Waterborne Traffic Marking Paints

Regional Product Availability

- Asia-Pacific

Description

FASTRACK™ 53 Emulsion is a 100% acrylic polymer designed specifically for use in waterborne traffic marking paints, especially when application occurs under marginal conditions of temperature, humidity and air flow. Commercial applications and road trials have shown that traffic marking paints formulated with FASTRACK 53 Emulsion offer faster drying in high humidity, low temperatures and poor air flow conditions, compared to conventional water based traffic paints. This fast dry capability improves the resistance of markings to early rain showers (early wash-out resistance).

Key Features

- High durability.
- Fast dry.
- Excellent retention of glass beads.
- 100% Acrylic polymer composition.
- Easy to use.

Benefits

- Excellent early wash-out resistance.
- Good dirt pick-up resistance.
- Good paint stability.
- Non-flammable. Water clean-up.

Typical Properties

(These properties are typical but do not constitute specifications)

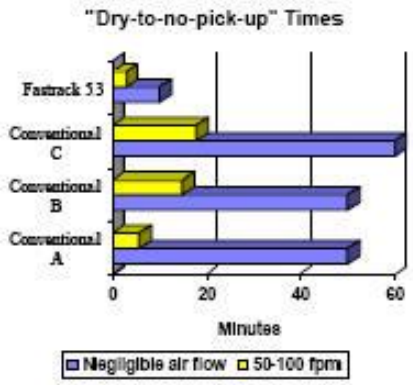
Property	Typical Values
Appearance	Opaque, white to off-white liquid
Solids, by weight, %	51.5
Density, wet, (g/ml)	1.06
pH	10.4
Minimum film formation temperature (± 2°C)	34
Viscosity (Brookfield LV #2, 60 rpm, 25 °C), cps	< 500
Storage precautions	Protect from freezing

Performance under marginal drying conditions

Traffic marking paints based on FASTRACK™ 53 Emulsion dry faster than conventional waterborne traffic paints, even at high humidity with no air flow.

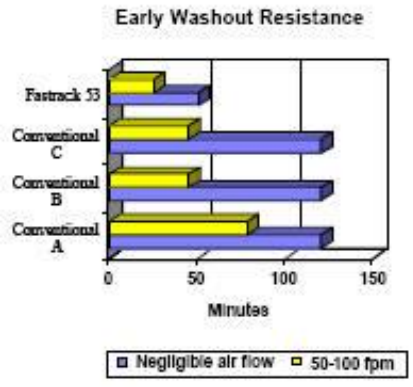
Dry-to-no-pick-up

"Dry-to-no-pick-up" is the drying time until a car can pass the fresh traffic marking, without picking up any paint from the road. In the following chart, ASTM Test Method D711, paints were drawn over clean cold rolled steel to a wet film thickness of 11 mils (280) and dried at 21°C and 50% to 55% relative humidity. The "dry-to-no-pick-up" times are compared for paints based on FASTRACK 53 Emulsion versus three commercially available conventional waterborne traffic paints at two different air flows. All testing was done using a laboratory drying chamber developed by Dow Coating Materials, in which humidity can be maintained at constant values and air flow can be minimized.



Early Washout Resistance

Paints based on FASTRACK 53 Emulsion become more resistant to "laboratory rain" faster than conventional waterborne traffic paints. The following chart demonstrates the improvement in "early washout" resistance:



Formulating Guidelines

Formulating waterborne traffic paints based on FASTRACK™ 53 Emulsion is similar to formulating other common types of latex paints. No unusual techniques or equipment are required. However, as a result of the very fast drying characteristics of FASTRACK 53 Emulsion, traffic paint manufacturers are recommended to adopt the following guidelines when formulating paints:

pH

Maintain a pH of 10.0 or above at all times during the manufacture and storage of paints based on FASTRACK™ 53 Emulsion. Use only ammonia to adjust the pH of the paint. Do not use less volatile amines or non-volatile base.

Grinding

Avoid excessive heating of the paint during manufacture. It is strongly recommended not to "grind" (disperse) at high speed (<1000 min-1 is recommended) to adequately incorporate the pigment into FASTRACK™ 53 Emulsion. Over-grinding will only aggravate skin and gel formation and foaming in the dispersing process.

Volume Solids

It is recommended to formulate at maximum volume solids, with the constraints of viscosity and paint stability in order to minimize "dry-to-no-pick-up" times. Our starting point formulations are formulated between 57 to 60% volume solids and can be applied without heating the paint.

Pigment Volume Concentration

High pigment/extender loads are necessary in traffic marking paints in order to achieve high solids and high durability on the road. Our road tests demonstrate that paints based on FASTRACK™ 53 Emulsion formulated at 54 to 60% PVC provide a good balance of cost and dry speed, road adhesion and glass bead retention.

Pigment and Extenders

All pigments used for traffic paints based on FASTRACK™ 53 Emulsion must be suitable to disperse easily in waterborne paints. The accelerated drying mechanism of FASTRACK 53 Emulsion is initiated by the drop of pH, caused by the evaporation of ammonia. Therefore it is important that pigment extenders do not contain high levels of alkaline impurities, preventing the required pH-drop after application.

Dispersant

Because of the type of application, the level of water sensitive dispersant is kept to a minimum, (approximately 0.25% solid dispersant on total pigment/extender weight) in order to minimize the "softening back" which can occur when the traffic paint film becomes wet. OROTAN™ 901 Dispersant is offered as a dispersant for optimization of dry speed and paint stability.

Wetting Agent

A surfactant is needed to facilitate wetting of the pigment particle surfaces. TRITON™ X-405 or Surfynol CT-136 Surfactants have been found to be effective in reducing "puffiness" and high viscosity.

Defoamer

Excessive foam in the paint will increase the apparent viscosity and lead to problems with gel formation. Both Tego 825 and Nopco 8034 defoamers are examples of effective defoamers. Alternatives should be evaluated for specific paint applications. It is important to avoid silicone based defoamers, since they may adversely affect the adhesion of the paint to the reflective glass beads.

Rheology Modifiers

Although traffic marking paints based on FASTRACK™ 53 Emulsion are less prone to pigment settling than conventional latex paints, a low level of rheology modifier can help to reduce pigment settling. ACRYSOL™ RM-12W Rheology Modifier, a highly pseudoplastic nonionic urethane rheology modifier, is offered as it gives some structure to the paint, without negative effect on spray ability.

Alcohol

Ethanol is added to paints based on FASTRACK™ 53 Emulsion to impart freeze-thaw stability, but also to optimize "dry-to-no-pick-up" times.

Coalescents

Waterborne traffic marking paints based on FASTRACK™ 53 Emulsion require the addition of coalescing solvents to obtain good film formation, particularly at lower application temperatures.

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

Dispose in accordance with all local, state (provincial) and federal 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, state (provincial) and federal regulations. Contact your Dow Coating Materials Technical Representative for more information.

Chemical Registration

Many countries within the Asia-Pacific 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 Asia-Pacific Product Line

Product availability and grades vary throughout the countries in Asia-Pacific. 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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