



## RHOPLEX™ I-2350 Emulsion

### Regional Product Availability

- North America

### Description

RHOPLEX™ I-2350 Emulsion is a versatile, all-acrylic aqueous vehicle suitable for overprint varnishes and letdowns for flexographic and gravure ink applications. It is a hard film former that combines high heat resistance (non zinc containing) and gloss with excellent compatibility. On press, RHOPLEX I-2350 Emulsion has excellent transfer and printability with good resolubility for ease of cleanup.

### Key Features

#### As an Overprint:

- Scuff resistance
- High inherent COF
- Very good heat resistance, can be modified with zinc crosslinkers to enhance heat resistance
- Excellent clarity over offset inks
- Good gloss

#### As a Letdown Vehicle:

- With aluminum paste pigments for good stability
- Good solvent compatibility with other resins, alcohols and commonly used additives

### Typical Physical Properties

(These properties are typical but do not constitute specifications.)

| Property              | Value                |
|-----------------------|----------------------|
| Appearance            | Milky white emulsion |
| Solids, %             | 30.0                 |
| pH                    | 8.5                  |
| Viscosity, cP         | 1000                 |
| Tg, °C                | 65                   |
| Acid number           | 75                   |
| Molecular weight      | >200,000             |
| Freeze/thaw stability | Fail, 5 cycles       |
| VOC                   | No                   |

### Compatibility Guidelines

#### Solvent Compatibility with RHOPLEX™ I-2350 Emulsion

RHOPLEX I-2350 Emulsion is compatible with the typical alcohols and glycol ether solvents utilized in the graphic arts industry.

#### Compatibility with Other Polymers

RHOPLEX I-2350 Emulsion is compatible with the standard styrene/acrylics that are used in the graphic arts industry.

## Typical Starting Point Formulations

### Application: Overprint Varnish

|                                                         | Scuff     | Heat            | Offset    |
|---------------------------------------------------------|-----------|-----------------|-----------|
| RHOPLEX™ I-2350 Emulsion                                | 39.5      | 79.8            | 74.5      |
| RHOPLEX I-545 Emulsion                                  | 39.5      | —               | —         |
| Water                                                   | 15.6      | 11              | 15.1      |
| Flexonic 600 <sup>1</sup> wax dispersion                | 5.0       | —               | —         |
| Michem Emulsion ME39235 <sup>2</sup> wax emulsion       | —         | 5.0             | 6.7       |
| Zinplex 15 <sup>3</sup> zinc ammonium carbonate complex | —         | 4.0             | —         |
| Surfynol 104H <sup>4</sup> surfactant                   | —         | —               | 3.4       |
| Patcote 811 <sup>5</sup> defoamer                       | 0.4       | 0.2             | 0.3       |
| Total                                                   | 100.0     | 100.0           | 100.0     |
| TS, %                                                   | 29.4      | 26.0            | 27.0      |
| Viscosity, #2 Zahn cup, sec.                            | 50        | 60              | 60        |
| Static Slide Angle                                      | 18        | 25              |           |
| Kinetic Slide Angle                                     | 10        | 20              |           |
| Sutherland Rub Resistance                               |           | Pass 500 cycles |           |
| Sentinel Heat Test                                      |           | Passes 375°     |           |
| Clarity                                                 | Excellent | Very Good       | Excellent |

<sup>1</sup>Flexonic 600 wax dispersion – Supplied by and a trademark of Resolution Specialty Materials

<sup>2</sup>Michem Emulsion ME39235 wax emulsion – Supplied by and a trademark of Michelman

<sup>3</sup>Zinplex 15 zinc ammonium carbonate complex – Supplied by and a trademark of Ultra Additives

<sup>4</sup>Surfynol 104H surfactant – Supplied by and a trademark of Air Products

<sup>5</sup>Patcote 811 defoamer – Supplied by and a trademark of Hydrite

### Application: Heat Resistant Flexo Ink for Paper and Paperboard

|                                                           |       |
|-----------------------------------------------------------|-------|
| Sunsperse <sup>1</sup> RHD-6002 (pigment red)             | 23.9  |
| RHOPLEX™ I-2350 Emulsion                                  | 50.8  |
| Michem Emulsion ME39235 <sup>2</sup> wax emulsion         | 1.8   |
| Water                                                     | 23.4  |
| Defoamer                                                  | 0.1   |
| Total                                                     | 100.0 |
| Sentinel Heat Resistance, face-to face, 2 seconds, 40 psi | 350°F |
| Viscosity, #2 Zahn cup, sec.                              | 35    |

<sup>1</sup>Sunsperse RHD-6002 pigment red – Supplied by and a trademark of Sun Chemical

<sup>2</sup>Michem Emulsion ME39235 wax emulsion – Supplied by and a trademark of Michelman

## Food Legislation

| FDA Regulation                                                                               | Complies             | Limitations                                                                                                                                                                    | Opinion Date |
|----------------------------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 21CFR175.105 (Adhesives)                                                                     | Yes                  |                                                                                                                                                                                | 28 Sep 12    |
| 21CFR176.170<br>(Components of paper and paperboard in contact with aqueous and fatty foods) | Yes with Limitations | ▪ LIMITED TO USE WITH ALL FOOD TYPES EXCEPT THOSE CONTAINING MORE THAN 8% ALCOHOL AS PER 176.170 (c) TABLE 1, AND CONDITIONS OF USE E IN TABLE 2 (AT TEMPERATURES UP TO 120°F) | 28 Sep 12    |
| 21CFR176.180<br>(Components of paper and paperboard in contact with dry food)                | Yes                  |                                                                                                                                                                                | 28 Sep 12    |

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## Additional Information

|                      |                           |                       |
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