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Hypomer MT-2350 *Matting Resin with Functionality*



Hypomer MT-2350 functional matting resin

Introduction

Hypomer MT-2350 is a hydroxyl acrylic matting resin with excellent matting efficiency provides paint film with high clarity and transparency, good hand feel and slip properties. Good adhesion performance on plastic substrates such as ABS or ABS/PC.

Combination of Hypomer MT-2350 with other hydroxyl acrylic resin can be formulated into applications for high quality matt clear coat such as 3C electrical products like digital equipments, cell phones, laptops, automotive interior or ancillaries coatings.

Properties

| | |
|--|--|
| OH% | 1.17 (as produced) |
| Appearance | white paste |
| Non-volatile content | 48 - 52% |
| Solvent | xylene / ethylene glycol monoethyl ether acetate / toluene / propylene glycol monomethyl ether acetate |
| Acid value, mgKOH/g | 25 - 45 |
| Glass transition temperature, T _g | ca. 51°C (DCS measure value) |

- * Good matting effect and weather resistance
- * High transparency
- * Slippery touch feel
- * Homogeneous paint film appearance
- * Excellent scratch resistance
- * Good compatibility with general hydroxyl acrylic resin

Test properties

Typical physical properties of matt clear coat (Resin/Thinner = 80/20)

Hypomer MT-2350 is a low hydroxyl fast drying resin, and shows better drying properties, can meet the requirement of low temperature and rapid coating application processes of 3C electrical products.

| | | |
|---|-----------------|--------|
| Drying speed (100 μm, wet film) | Touch free time | 4'45" |
| | Tack free time | 36'23" |
| Dry film thickness (μm) | <10 | |
| 60° gloss (black ABS plate) | 2.0 | |
| Hardness (ABS substrate, no scratch mark) | 60°C × 30 min | B+ |
| | 60°C × 6 hrs | HB |

Variation of clear coat physical and adhesion properties of Hypomer MT-2350 and combination with Hypomer FX-2451F.

Hypomer FX-2451F or other acrylic resin can be used to modify general physical properties of matt clear coat according to formulation requirement. Hypomer MT-2350 offers flexibility to formulators to achieve balance of desired physical properties and gloss level.

Table 1: Physical properties of the matt clear coat.

| matt varnish | Hypomer MT-2350 | Hypomer MT-2350/Hypomer FX-2451F = 2.2/1 | Hypomer MT-2350/Hypomer FX-2451F = 1/1.5 | |
|---|-----------------|--|--|----------|
| 60° gloss | 2.0 | 8.9 | 45.1 | |
| Alcohol resistance (Loading 1000 g/wipe off time) | 622 | 890 | 1000 | |
| MEK resistance (Loading 1000 g/wipe off time) | 90 | 98 | 110 | |
| Hardness (ABS substrate, no scratch mark) | HB | HB | HB | |
| Adhesion | ABS | 0 degree | 0 degree | 0 degree |
| | ABS+PC | 0 degree | 0 degree | 0 degree |
| | PC | 0 degree | 0 degree | 0 degree |

Note: film thickness: 12 - 14 μm; Baking condition: 60°C × 6 hrs, tests are performed next day. ABS substrate

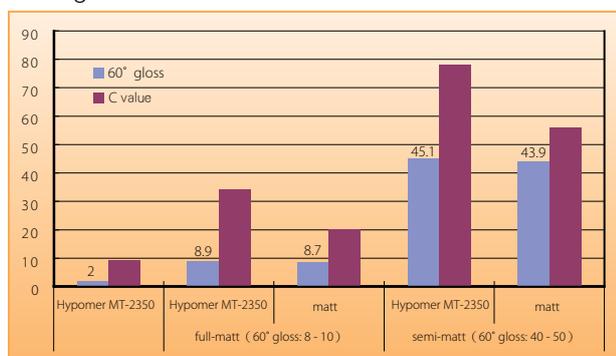
| matt metallic paint | Hypomer MT-2350 | Hypomer MT-2350/ Hypomer FX-2451F = 1/3 | Hypomer MT-2350 Hypomer FX-2451F = 1/6 |
|---|-----------------|--|--|
| 60° gloss | 5.5 | 13 | 42 |
| Alcohol resistance (Loading 1000 g/wipe off time) | 180 | 230 | 560 |
| RCA resistance (Loading 175 g/wipe off time) | 20 | 23 | 32 |
| rubber resistance (Loading 1000 g/wipe off time) | >1000 | >1000 | >1000 |
| Hardness (ABS substrate, no scratch mark) | HB | HB | HB+ |

Note: film thickness: 12 - 14 μm; Baking condition: 60°C × 6 hrs, tests are performed next day. ABS substrate

Note: Alcohol resistance, RCA resistance and chemical resistance are significantly affected by the formulation, application condition (film thickness), curing condition and substrate, this test data is only for reference.

Transparency of coatings

The value of **Hypomer MT-2350** is its unique matting mechanism that varies from traditional matting silica, will provide a matt clear coat with high clarity and transparency. The following test data of transparency are measured on matt clear coat with gloss level adjusted to similar or same level using **Hypomer MT-2350** and matting silica.



Note: "C value" shows clarity. The greater C value means higher clarity and transparency of coating films.

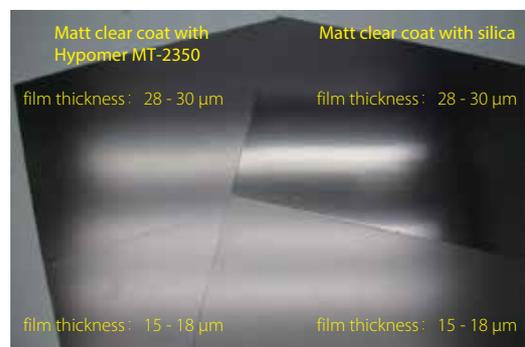
The following picture compares transparency of two coating films made formulated with **Hypomer MT-2350** and matt silica respectively. Paint film with **Hypomer MT-2350** shows clearer background pattern, which means the better of transparency.



Matt clear coat with Hypomer MT-2350

Matt clear coat with silica

Gloss consistency at different film thickness



Above picture shows that paint film formulated with **Hypomer MT-2350** demonstrates no or much less gloss level variance at different film thickness. This is a significant benefit for achieving homogenous coating appearance over large coating surface and provides consistent over spray appearance.

Less sedimentation of finished product and after dilution

Hypomer MT-2350 provides good compatibility with hydroxyl acrylic resin. Matt paints containing **Hypomer MT-2350** only or in combination with other hydroxyl acrylic resins will show less sedimentation, no matter in full matt or semi-gloss systems. The following picture

shows the sedimentation outcome of formulated matt paint after storage at 50°C for 7 days. The paint made by matt silica significantly separated into two phases, and paint made by **Hypomer MT-2350** shows homogeneous and less sedimentation. picture shows the appearance of the matt paint after storage at 50°C for 7 days.

The paint made by matt silica significantly separated into two phases, and paint made by **Hypomer MT-2350** shows homogeneous and less sedimentation.



Traditional matt paint formulated with silica is easily settled to the bottom after diluting to spray viscosity. By using **Hypomer MT-2350**, the matt paint will give better suspension performance under identical condition.



MT-2350 matt silica MT-2350 matt silica

Above picture shows the matt paint made by **Hypomer MT-2350** and matt silica, diluted to the spray viscosity (9 sec, NK-2 cup), the appearance of paint after setting for 3 hours and 4 hours at room temperature.

NOTE: The information herein is currently believed to be accurate. We do not guarantee its accuracy. Purchasers shall not rely on statements herein when purchasing any products. Purchasers should make their own investigations to determine if such products are suitable for a particular use. The products discussed are sold without warranty, express or implied, including a warranty of merchantability and fitness for use. Purchasers will be subject to a separate agreement which will not incorporate this document.

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Summary

Hypomer MT-2350 is designed for top coat preparation with excellent matting and transparency properties and suitable for metallic paint and colour paint. It has good performance on aluminum flakes orientation. **Hypomer MT-2350** is a hydroxyl acrylic matt resin with excellent surface touch and slippery properties. **Hypomer MT-2350** can fit for wide range of applications for 3C electric products, automotive interior decorations and high quality wood furniture paints.

Recommendations

Hypomer MT-2350 in matting paint system is convenient and easier to formulate than matting silica, but also feature benefits of excellent matting effect, good transparency, easy to disperse, good anti-settling and scratch resistance.

Hypomer MT-2350 can be formulated to full-matt and in combination with other acrylic to vary gloss level, such as Hypomer FX-2451F.

Note

It is normal for **Hypomer MT-2350** to show increase in viscosity after long term storage. Please stir rapidly to break the false body to give flowable liquid before usage.

Due to the thixotropic nature of **Hypomer MT-2350**, the thixotropic effect will increase significantly during curing process, especially under high temperature environment. The decrease of pot life should be noted.