

Capa[®] 2054 IN HIGH SOLIDS EPOXY PRIMERS

Capa[®] 2054, a liquid Polycaprolactone diol is compatible with a wide range of epoxy resins.

Primers containing such mixtures can be produced at lower costs and higher solids contents and when cured with urea-formaldehyde resins under conventional stoving conditions, their hardness and corrosion resistance are equivalent to the unmodified product, yet flexibility is considerably improved.

These improvements are demonstrated in the accompanying information which compares the effect of Caprolactone modification in these systems. A further advantage of this approach is that in the presence of Capa[®] 2054 flexible coatings can be made from the lower MW epoxy resins such as Epikote 1004 and even Epikote 1001. Consequently, higher solids formulations can be prepared at standard application viscosities giving valuable reductions in both costs and energy requirements.

Formulation 1: High Solids Primer Containing Capa[®] and Epikote 1004

| | |
|------------------------|--------------|
| Tiona 472 | 10.61 |
| Microtalc AT extra | 10.61 |
| Zinc chromate J9795 | 2.36 |
| Epikote 1004 | 17.11 |
| Capa [®] 2054 | 5.92 |
| Be610 | 9.69 |
| Catalyst solution* | 1.08 |
| Xylene | 21.31 |
| 2 Ethoxy Ethyl Acetate | <u>21.31</u> |
| | 100.00 |

Formulation 2: Conventional Primer Based Upon Epoxy 1009

| | |
|------------------------|--------------|
| Tiona 472 | 5.99 |
| Microtalc AT extra | 5.99 |
| Zinc chromate | 1.33 |
| Epikote 1009 | 12.48 |
| Be610 | 6.20 |
| Catalyst solution* | 0.61 |
| Xylene | 33.70 |
| 2 ethoxy ethyl acetate | <u>33.70</u> |
| | 100.00 |

* Para toluene sulphonic acid neutralised with dimethyl ethanolamine 25% w/w solution in N-butanol.

Table 1

| Property | Capa [®] Based System I | Conventional System II |
|--|----------------------------------|-----------------------------|
| Solids content (% w/w) | 53.3% | 30.1% |
| Viscosity at 23°C | 25 secs in Ford 4 Cup | 25 secs in Ford 4 Cup |
| Physical properties after stoving for ½ hr. at 180°C: | | |
| Dry film thickness | 6 micron | 6 microns |
| Reverse impact | >160" lb | >140" lb |
| Solvent resistance | >50 MEK rubs | >50 MEK rubs |
| Flexibility (180°C-Bend) | 1½T | 3T |
| Pencil hardness | 4H | 4H |
| Cold salt spray test (1000 hrs according to BSS 3900 F4) | No blistering 1 mm Creep | No blistering 1 mm Creep |
| Physical properties after 1 minute stoving at 350°C:- | | |
| Dry film thickness | 6 microns | 6 microns |
| Reverse impact | >160" lb | >160" lb |
| Solvent resistance | >50 MEK rubs | >50 MEK rubs |
| Flexibility (180°T-Bend) | 1½T | 3T |
| Pencil hardness | 5H | 5H |

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