

TECHINICAL DATA SHEET

RP-112

Fire Retardant Coating Steel Mastic (Solvent Based)

1. Product Description

A solvent-based fire-retardant mastic designed for structural steel protection. Upon exposure to fire or high heat, the coating expands / chars / intumesces (depending on formulation) to provide thermal insulation, limit temperature rise on unexposed steel, and delay structural failure under fire exposure.

2. Key Features

Feature	Details
Fire rating	2/4 hours, depending on steel section size and coating thickness
Substrate	Structural steel, exposed steel surfaces, possibly mild/low alloy steels
Film type	Mastic / thick film composite; may be intumescent or ablative
Solvent base	Organic solvents; delivers fast drying, good adhesion, suitable for external / internal use
Surface finish	Matte / satin; may require topcoat for UV stability if exposed outdoors
Durability	Resistant to corrosion, moisture, and potentially mechanical damage (depending on grade)
Compatibility	May require primer or pre-treatment for optimal adhesion

3. Typical Application Areas

- Structural steel members in buildings (beams, columns)
- Bridges, platforms, industrial structures
- Steel in exposed locations (eaves, façades)
- Fire-protection of steel elements in tunnels, stairwells

4. Technical Data / Properties

Property	Value (Typical)
Appearance / Colour	(off White, grey, red oxide, black)
Solids by volume	~ 60-80 %
Density	≈ 1.4-1.8 g/cm ³ (dry film)
Viscosity	(e.g. - Brookfield, e.g. 15-50 Pa·s at 25°C)
Minimum film thickness (Dry Film Thickness, DFT) for fire rating	e.g. 1.5 mm for 60 min, 2.5 mm for 120 min (varies with steel section)
Wet film thickness (WFT)	Calculated from solids volume / DFT; e.g. ~2.0-3.5 mm WFT to achieve DFT depending on shrinkage
Drying time (touch dry / handle / full cure)	Touch dry: ~2-4 hours; Handle able: ~8-12 hours; Full cure: 24-48 hours (depending temp / humidity)
Recommended application temperature	Ambient: 10-35°C, Substrate: >5°C above dew point
Shelf life	Unopened: 12-24 months (depending manufacturer)
Flash point	(value depending solvent; must comply with safety rags)

5. Surface Preparation

- Remove rust, mill scale, old coatings — ideally blast to **Sa 2.5** (ISO 8501-1) or equivalent.
- Clean surface free of oil, grease, dust or other contaminants.
- For field touch-ups, clean and abrade area to "white metal" or appropriate degree, then apply primer if needed.

6. Application Method

- Apply by trowel / spatula for small repairs; airless spray or plural component spray recommended for large or thick thickness jobs.
- Multiple passes may be required to achieve required DFT; allow each layer to dry sufficiently before applying next.
- If using spray, control overspray; ensure uniform wet film thickness.
- FR thinner / reducer if necessary (as per manufacturer).

7. Fire Performance / Approvals

- Tested to relevant standards: e.g. **ASTM E119 / UL 263, EN 13381-8, BS 476 Pt 20/21**, or local Indian Standard (e.g. **IS 1239, IS 1642** or equivalent).
- Achieves fire resistance for steel sections with given thickness (list specific steel sizes).
- Temperature rise on unexposed side limited to recommended values (e.g. 140°C after specified time).

8. Health, Safety & Environment

- Solvent vapour: ensure good ventilation. Use appropriate PPE (respirator, gloves, goggles).
- Flash point: keep away from ignition sources. Store in cool, dry place.
- Disposal: comply with local hazardous waste regulations.

9. Packaging, Storage & Shelf Life

- Packaging: Metal barrels / drums .
- Storage: Temperatures between 5-35°C; seal containers tightly; protect from moisture.
- Shelf Life: Typically 12-24 months unopened; label with batch number and manufacture date.

10. Typical Coverage / Coverage Rate

- Depending on thickness: e.g. to get 1.5 mm DFT, WFT may be ~2.5 mm; coverage might be ~0.6-1.0 sq.m per kg per coat.
- Must account for substrate profile, overspray, and material loss.

11. Limitations / Considerations

- Solvent odours and flammability during application.
- Potentially shrinkage/cracking if too thick in one coat.
- UV and weather exposure may degrade surface finish unless top coated.
- Needs maintenance check-ups; damage (scratches, impacts) can reduce fire performance



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