

HIMCOAT ENAMEL

COAL TAR BASED PIPELINE COATING



PRODUCT DATA SHEET

DESCRIPTION

Himcoat Enamel is a thermoplastic polymeric coating produced from plasticization of coal tar pitch, coal and its distillates followed by addition of inert fillers. Himcoat Enamel is produced in accordance with standards BS 4164, AWWA C203 and IS10221.

ADVANTAGES & SALIENT FEATURES

When used together with Himcoat Primer B, Glass Fibre Inner wrap and coal tar impregnated glass fibre outer wrap HIMWRAP it provides long-term protection to pipelines.

- Permanent corrosion protection
- Resistance to soil bacteria and marine organism
- Low moisture absorption
- Good electrical insulation
- Insolubility in hydrocarbon
- Excellent adhesion to metal
- Retention to form under soil pressure
- Ease of application
- Good flexibility and temperature susceptibility
- Resistant to Cathodic disbonding
- Inertness to soil chemicals

APPLICATION METHODOLOGY

Himcoat enamel to be broken into small pieces of approx. 2 kgs and loaded into the kettle. It is advisable to first melt the material under slow firing till half the tank capacity and then to add new material and start agitation periodically to avoid carbonization.

Enamel to be heated and maintained at application temperature. Excessive heating to be avoided and it is very important to have a temperature recorder fitted to the kettle all the time which must be calibrated time to time.

The maximum temperature of the enamel should never exceed 245°C, enamel above this temperature should be rejected, if when tested out of specification.

Enamel held at application temperature for more

than four hours should be rejected, if when tested out of specification.

The left over material from the previous batch can be added to the fresh material at the rate of 10% maximum per batch.

Any material recovered from the reused batch should not be reused and is to be rejected. Enamel should not be applied to primed pipe when metal temperature is below 7°C and the pipe to be coated should be free from dust, dirt, oil and moisture.

For best results, application should be carried out at either 5°F or 3°C above dew point. Best bonding is achieved in this case.

STORAGE

- To be stored in clean area to avoid contamination
- For bulk liquid storage the temperature to be maintained from 180°C-210°C

PACKAGING AND SHIPPING INFORMATION

- Standard 250kgs MS drum
- Drums are marked for easy identification with grade and batch number
- Silicone coated paper bags also available
- Himcoat Enamel can also be supplied in tanker loads in liquid condition after taking into consideration the distance to be covered and arrangements at the unloading point.
- For overseas shipment, packed drums loaded in containers or shipped as bulk cargo

HEALTH AND SAFETY

- Use of gloves and filler type masks are recommended in the application area
- Eye protection glasses recommended when enamel is on use, in event of contact wash eyes with cold water and seek medical advice
- Cream to be applied to skin before commencing work
- Ventillation must be adequate in area of application
- For fire protection use CO₂ or dry powder

SPECIFICATION SHEET

A S P E R A W W A C 2 0 3

| Characteristics | Testing Method | Enamel Type 1 | | Enamel Type 2 | |
|---|----------------|---------------|-------|---------------|------|
| | | Min | Max | Min | Max |
| Softening Point (R & B)°C | ASTM D 36 | 104 | 116 | 104 | 116 |
| Filler Content. % by weight | ASTM D 2415 | 25 | 35 | 25 | 35 |
| Fineness Filler, 200 mesh % by weight | ASTM D 546 | 90 | - | 90 | - |
| Specific Gravity at 25°C | ASTM D 71 | 1.4 | 1.6 | 1.4 | 1.6 |
| Penetration Test | | | | | |
| 25°C / 100 g / 5 sec / 0.1 mm | AWWA C 203 | 5 | 10 | 10 | 20 |
| 46.1°C / 50 g / 5 sec / 0.1 mm | Sec 5.3.2 | 12 | 30 | 15 | 55 |
| High temperature sag test | AWWA C 203 | - | 1.6 | - | 1.6 |
| At 71°C / mm | Sec 5.3.4 | | | | |
| Low temperature cracking test | AWWA C 203 | - | None | N/A | N/A |
| At -23.3°C | Sec 5.3.5 | | | | |
| Low temperature cracking test | AWWA C 203 | N/A | N/A | - | None |
| At -28.9°C | Sec 5.3.5 | | | | |
| Impact test at 25°C | AWWA C 203 | | | | |
| (Disbonded area, mm ²) | Sec 5.3.7 | | | | |
| Direct | | - | 10323 | - | 6452 |
| Indirect | | - | 3871 | - | 1290 |
| Peel test | AWWA C 203 | no peeling | | no peeling | |
| | Sec 5.3.6 | | | | |
| Recommended pipe pre-heating temperature °C | | 40 - 50 | | 40 - 50 | |
| Recommended application | | 235 to 245 | | 235 to 245 | |
| Temperature, °C | | | | | |
| Recommended in service | | -25 to +65 | | -30 to +55 | |
| Temperature, °C | | | | | |
| Electrical resistance, 10000 volts | | no breakdown | | | |

A S P E R B S - 4 1 6 4

| Characteristics | Testing Method | Grade 105/8 | | Grade 120/5 | |
|---|----------------|--------------|-----|-------------|-----|
| | | Min | Max | Min | Max |
| Softening Point (Ring & Ball)°C | Appendix D | 05 - 116 | | 120 - 130 | |
| Density at 25° C,g/cm ³ | Appendix C | 1.40 - 1.60 | | 1.40 - 1.60 | |
| Filler Content by ignition % by mass | Appendix B | 25 - 35 | | 25 - 35 | |
| Penetration (total moving mass) | | | | | |
| 25°C , 100g | Appendix E | 5 - 12 | | 1 - 9 | |
| 45°C , 50 g | | 8 - 30 | | 3 - 16 | |
| Flow Time , seconds | | | | | |
| 230°C | Appendix F | 9 - 16 | | _____ | |
| 240°C | | | | | |
| Sag , maximum , mm | | | | | |
| 70°C, 24 hrs | Appendix G | 1.5 | | _____ | |
| 80°C, 24 hrs | | | | | |
| Low temperature cracking and disbonding | | | | | |
| - 25°C | Appendix H | _____ | | none _____ | |
| - 20°C | | | | | |
| Bend at 0°C | Appendix J | _____ | | none | |
| First crack, minimum, mm | | | | | |
| Initial | | 15 | | _____ | |
| After heating | | 10 | | _____ | |
| Disbonded area, maximum, mm ² | | | | | |
| Initial | | 3000 | | _____ | |
| After heating | | 5000 | | _____ | |
| Impact, disbonded area maximum, mm ² | Appendix K | _____ | | _____ | |
| 0°C | | | | | |
| 25°C | | 10,000 | | _____ | |
| Peel, initial and delayed , maximum , mm | Appendix L | | | | |
| 40°C | | 3.0 | | _____ | |
| 50°C | | 3.0 | | _____ | |
| 60°C | | 3.0 | | 3.0 | |
| 70°C | | _____ | | 3.0 | |
| Cathodic Disbonding in 28 Days ,max ,mm | Appendix M | 5 | | 5 | |
| Recommended pipe pre-heating temperature °C | | 40 - 50 | | 40 - 50 | |
| Recommended application | | | | | |
| Temperature, °C* | | 235 to 250 | | 235 to 255 | |
| Recommended in service | | | | | |
| Temperature, °C | | -25 to +65 | | -5 to +80 | |
| Electrical resistance, 10,000 volts/1 mm | | no breakdown | | | |

Represented by :



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CORROSION PROTECTION DIVISION

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