STEELGUARD™ 651

DESCRIPTION

One-component, thin-film, waterborne intumescent coating for fire protection of structural steelwork

PRINCIPAL CHARACTERISTICS

- Provides up to 120 minutes protection from cellulosic fires
- On-site application
- Up to 700 µm (28.0 mils) DFT in a single coat
- Suitable for C1, C2 and C3 internal environments (ISO 12944) ; for dry internal (C1) environments no topcoat is required
- Tested and assessed to EN13381-8, BS476-20/21 and GB14907
- CE marked product, ETA 22/0050
- assessed to EAD 350402-00-1106 for Z1, Z2 and Y

COLOR AND GLOSS LEVEL

- White
- Matt

BASIC DATA AT 20°C (68°F)

Data for product	
Number of components	One
Mass density	1.41 kg/l (11.77 lb/US gal)
Volume solids	70 ± 3%
VOC (Supplied)	Directive 2010/75/EU, SED: max. 0.2 g/kg EUR Directive: 2004/42/IIA(i)(140) 3 g/l
Recommended dry film thickness	200 - 700 µm (8.0 - 28.0 mils) per coat
Theoretical spreading rate	1.00 m^2/l for 700 µm (40 ft^2/US gal for 28.0 mils)
Dry to touch	2 hours
Overcoating Interval	Minimum: 16 hours Maximum: Unlimited
Shelf life	At least 12 months when stored cool and dry

Notes:

- See ADDITIONAL DATA – Spreading rate and film thickness
- See ADDITIONAL DATA – Overcoating intervals
- See ADDITIONAL DATA – Curing time
- The required dry film thickness must be in accordance with the approval certification
- Materials should be stored in dry conditions, out of direct sunlight and at temperature between 10°C (50°F) and 30°C (86°F). Shelf life may be reduced by storage at low temperatures, material must not be allowed to freeze

RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

- Approved primer must be sound, dry and free from any contamination

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Substrate temperature and application conditions

- Substrate temperature during application and curing should be between 10°C (50°F) and 40°C (104°F)
- Substrate temperature during application and curing should be at least 3°C (5°F) above dew point
- Ambient temperature during application and curing should be between 10°C (50°F) and 40°C (104°F)
- Relative humidity during application and curing should not exceed 80%

Note: Over application will extend drying/curing times. Care should be taken in areas such as flange/web interfaces as excessive film build can result in small hairline cracks. This cracking will not affect the fire performance of the material.

INSTRUCTIONS FOR USE

- Stir thoroughly until homogeneous and free of lumps
- Adding too much water results in reduced sag resistance and slower cure
- Must be protected from freezing at all times during storage and/or transport

Airless spray

Recommended thinner
Tap water (normally no thinner required)

Volume of thinner
0 - 5%

Nozzle angle
20° – 50°, depending on shape of steel parts

Nozzle orifice
Approx. 0.43 – 0.53 mm (0.017 – 0.021 in)

Nozzle pressure
20.0 MPa (approx. 200 bar; 2901 p.s.i.)

Notes:
- All filters, including surge bottle and gun filters to be removed
- External fluid uptake pipe filter is recommended

Brush/roller

- For small areas only (touch up and repair)

Recommended thinner
No thinner should be added

Cleaning solvent
Tap water

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ADDITIONAL DATA

Spreading rate and film thickness	
DFT	**Theoretical spreading rate**
200 µm (8.0 mils)	3.50 m^2/l (140 ft^2/US gal)
400 µm (16.0 mils)	1.75 m^2/l (70 ft^2/US gal)
500 µm (20.0 mils)	1.40 m^2/l (56 ft^2/US gal)
700 µm (28.0 mils)	1.00 m^2/l (40 ft^2/US gal)

Note: Maximum DFT when brushing: 300 µm (12.0 mils)

Overcoating interval for DFT up to 700 µm (28.0 mils)					
Overcoating with...	**Interval**	**10°C (50°F)**	**15°C (59°F)**	**20°C (68°F)**	**30°C (86°F)**
itself	Minimum	24 hours	20 hours	16 hours	12 hours
	Maximum	Unlimited	Unlimited	Unlimited	Unlimited
approved topcoats	Minimum	24 hours	20 hours	18 hours	14 hours
	Maximum	Unlimited	Unlimited	Unlimited	Unlimited

Notes:

- All overcoating times have been measured at an intumescent wet film thickness of 1000µm (approx. 700µm DFT) under controlled temperature and relative humidity below 85 %. Higher thicknesses will take longer to cure.
- The system should be dry to handle and coating thickness gauge should not to leave an indentation on the surface prior to applying subsequent coats. Curing time(s)/overcoating interval(s) may be extended at higher applied DFT's and/or there is a change in environmental conditions.
- Prior to application of a topcoat, the applicator must ensure that the specified dry film thickness has been achieved.

Curing time for DFT up to 700 µm (28.0 mils)	
Substrate temperature	**Dry to touch**
10°C (50°F)	4 hours
15°C (59°F)	3 hours
20°C (68°F)	2 hours
30°C (86°F)	1 hour

Note: All curing times have been measured at an intumescent wet film thickness of 1000µm (approx. 700µm DFT) under controlled temperature and relative humidity below 80 %. Higher thicknesses will take longer to cure.

SAFETY PRECAUTIONS

- For paint and recommended thinners see INFORMATION SHEETS 1430, 1431 and relevant Material Safety Data Sheets
- Although this is a waterborne paint, care should be taken to avoid inhalation of spray mist, as well as contact between the wet paint and exposed skin or eyes

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REFERENCES

• STEELGUARD™ APPLICATION GUIDELINES	INFORMATION SHEET	1222
• STEELGUARD™ QUALIFIED PRIMERS	INFORMATION SHEET	1224
• STEELGUARD™ QUALIFIED TOPCOATS	INFORMATION SHEET	1226
• CONVERSION TABLES	INFORMATION SHEET	1410
• EXPLANATION TO PRODUCT DATA SHEETS	INFORMATION SHEET	1411
• SAFETY INDICATIONS	INFORMATION SHEET	1430
• SAFETY IN CONFINED SPACES AND HEALTH SAFETY, EXPLOSION HAZARD – TOXIC HAZARD	INFORMATION SHEET	1431
• CLEANING OF STEEL AND REMOVAL OF RUST	INFORMATION SHEET	1490
• SPECIFICATION FOR MINERAL ABRASIVES	INFORMATION SHEET	1491
• RELATIVE HUMIDITY – SUBSTRATE TEMPERATURE – AIR TEMPERATURE	INFORMATION SHEET	1650

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