

# 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 <sup>2</sup> /l for 700 µm (40 ft <sup>2</sup> /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



# STEELGUARD™ 651

## 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.
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## 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
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### 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
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# STEELGUARD™ 651

## Brush/roller

- For small areas only (touch up and repair)

## Recommended thinner

No thinner should be added

## Cleaning solvent

- Tap water

## ADDITIONAL DATA

Spreading rate and film thickness	
DFT	Theoretical spreading rate
200 µm (8.0 mils)	3.50 m <sup>2</sup> /l (140 ft <sup>2</sup> /US gal)
400 µm (16.0 mils)	1.75 m <sup>2</sup> /l (70 ft <sup>2</sup> /US gal)
500 µm (20.0 mils)	1.40 m <sup>2</sup> /l (56 ft <sup>2</sup> /US gal)
700 µm (28.0 mils)	1.00 m <sup>2</sup> /l (40 ft <sup>2</sup> /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 WFT of 1000 µm (approx. 700 µm DFT) under controlled temperature and relative humidity below 80%. 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.



# STEELGUARD™ 651

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 WFT of 1000 µm (approx. 700 µm DFT) under controlled temperature and relative humidity below 80%. Higher thicknesses will take longer to cure

## SAFETY PRECAUTIONS

- Read all label and Safety Data Sheet (SDS) information prior to use
- 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

## WORLDWIDE AVAILABILITY

It is always the aim of PPG Protective and Marine Coatings to supply the same product on a worldwide basis. However, slight modification of the product is sometimes necessary to comply with local or national rules/circumstances. Under these circumstances an alternative product data sheet is used.

## REFERENCES

- Guide | PPG STEELGUARD | Application guidelines
- System sheet | PPG STEELGUARD | Approved primers
- Information sheet | Explanation of product data sheets

## WARRANTY

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