

PHENGUARD TANKCOATING SYSTEM

3322

a four page issue

January 2010
revision of April 2009**GENERAL DESCRIPTION**

The PhenGuard tankcoating system is a 3 coat phenolic epoxy tanklining, with maximum cargo flexibility and excellent resistance against a very wide range of organic acids, alcohols, edible oils, fats (regardless of free fatty acid content) and solvents.

This tankcoating system, consisting of a primer, a coating and a finish is especially developed for tanks which are to carry the widest range of liquid cargoes possible.

Prefabrication primers, if present, must be removed. The specified total minimum dry film thickness is 300 µm, the average maximum dft is 450 µm and locally the maximum dft should not exceed 600 µm. (Minimum and maximum dfts per coat for airless spray application are 80 µm and 200 µm respectively.) Edges, welding seams, backsides of bulbs, corners and other areas not readily accessible to spray application, to be stripe coated by brush with the next coat of the system to achieve the specified film thickness.

For detailed information on resistance and resistance notes, please refer to the latest issue of the Tankcoating Resistance list (TRIS).

For recommended application instructions

– see working procedure –

SYSTEM SPECIFICATION FOR IN SITU BLASTED STEEL

SPECIFICATION 1	system for chemical and solvent resistance according to latest issue of the Tankcoating Resistance list (TRIS)	
pretreatment	steel; blast cleaned in situ to at least ISO-Sa2½ and free from rust, scale, prefabrication primer and any other contamination blasting profile (Rz); 50 - 100 µm	
paint system	PhenGuard 930	100 µm
	PhenGuard 935	100 µm
	PhenGuard 940	100 µm

For airless spray application the minimum dft per coat is 80 µm and the maximum dft per coat is 150 µm for the primer and 200 µm for the coating or finish

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SPECIFICATION 2	maintenance of minor defects		
pretreatment	corroded mechanically damaged spots and other defects should be freed from rust and any contamination by reblasting to a minimum of ISO-Sa2½ (preferably vacuum blasting) or disc sanding according to SPSS-Pt3 the areas surrounding the cleaned spots should be carefully feather edged in order to obtain good adhesion		
paint system	original system specification if repaired by brush, at least 4 coats have to be applied in order to obtain the specified dry film thickness (300 µm) or SigmaGuard 795 150 µm SigmaGuard 795 150 µm		

DATA FOR OVERCOATING

Substrate temperature	Interval between coats 1 and 2	Interval between coats 2 and 3	Interval between coats 1, 2 and 3
	minimum	minimum	maximum
10°C	60 hours	36 hours	28 days
15°C	48 hours	32 hours	25 days
20°C	36 hours	24 hours	21 days
30°C	24 hours	16 hours	14 days
40°C	16 hours	12 hours	7 days
Remarks:	1, 2	2	2

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CURING TABLE

substrate temperature	min. curing time of PhenGuard tankcoating system before transport of cargoes without note 4, 7, 8 or 11 and ballast water and tanktest with seawater
10°C	14 days
15°C	14 days
20°C	10 days
30°C	7 days
40°C	5 days

REMARKS

1. Minimum curing time of PhenGuard tankcoating system before transport of cargoes with note 4, 7, 8 or 11: 3 months.
2. For detailed information on resistance and resistance notes, please refer to the latest issue of the Cargo Resistance List.
3. For transport of methanol and vinyl acetate monomer, a hot cargo cure is required which cannot be substituted by a service period of 3 months with non-aggressive cargoes.
4. Adequate ventilation must be maintained during application and curing (please refer to sheet 1433 and 1434).
5. The performance of the applied system strongly depends on the curing degree of the first coat at time of recoating. Therefore the overcoating time between 1st and 2nd coat is extended in comparison between 2nd and 3rd coat. (see overcoating details).

REFERENCES

PhenGuard 930	see product data sheet 7409
PhenGuard 935	see product data sheet 7435
PhenGuard 940	see product data sheet 7436
SigmaGuard 795	see product data sheet 7455
Safe working in confined spaces	see information sheet 1433
Directives for ventilation practice	see information sheet 1434
Cleaning of steel and removal of rust	see information sheet 1490
Specification for mineral abrasives	see information sheet 1491
Recognized corrosion control coating (Lloyd's register)	see information sheet 1886

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APPENDIX TO PHENGUARD TANKCOATING SYSTEM

HOT CURE

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Method: Hot Water using Butterworth Systems

For vessels of double skin construction the procedure for hot cure of the PhenGuard system with hot fresh water gives good results.

Temperature of the water: approximately 80 - 85 Degrees Centigrade.

Steel Temperature: Minimum steel temperature of the internal surface must be constant 60 Degrees Centigrade.

Minimum curing time in relation to steel temperature:

Min curing time	Steel Temperature
16 Hours	60 Degrees Centigrade
6 Hours	70 Degrees Centigrade
3 Hours	80 Degrees Centigrade

Procedure

Recommended procedure is to commence by heating up of water to a temperature of 80 - 85 Degrees Centigrade using heating coils in slop tanks or by other means such as heat exchangers, then distributing the hot water through butterworths using recirculation method continuously for periods as described in above table.

Start up time before achievement of required substrate temperature depends on the capacity of heating equipment, and external temperatures.

Special note

- 1) Heating up times are not included in the minimum curing times mentioned in the above table
- 2) Steel temperatures during curing period must be monitored continuously and extensively by automatic equipment. Special attention to be taken to cold areas such as but not limited to stiffeners etc. A record of temperatures to be maintained at all times.
- 3) To avoid cold wall effect, adjacent areas must be free from Ballast or Cargo.

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