

PPG SIGMAFAST™ 278

Rapid-drying primer and buildcoat
for in-shop applications

**Our unique sustainable coating combines 80% of
volume solids with excellent fast-drying properties**



A unique range of features and benefits for in-shop steel fabrication



Our PPG SIGMAFAST 278™ two-component, zinc phosphate epoxy primer and buildcoat offers a unique range of features and benefits for in-shop steel fabrication:

- High solids: 80% of volume solids
- Fast drying time, which enables handling soon after application
- Wide range of corrosion protection to durably protect customers' assets with only two coats
- Broad range of application thickness to enable high dry-film thickness in one coat
- Large, effective temperature range that allows application in all seasons
- No induction time



The ultimate solution for in-shop application

A zinc phosphate epoxy direct-to-metal (DTM) primer/buildcoat that benefits customer operations and is proven by its successful, global track record of application on millions of square meters on various projects.

In-shop productivity

Our PPG SIGMAFAST 278 coating is designed for shop and field applications. Its unique film build capabilities, dry time, recoat window and volume solids has proven its value to a wide range of owners and applicators.

Certificates

The PPG SIGMAFAST 278 primer/buildcoat is used either DTM, with or without a zinc-rich primer, covering all relevant systems in NORSOK M501 Rev 6 System 1 and ISO12944:2018 C2 up to C5 and Cx (see appendix for all ISO12944:2018 certified systems on carbon steel, Hot Dipped Galvanized (HDG) and Thermal Sprayed Metal (TSM)).

Sustainability

PPG take responsibility for minimizing the human health and environmental impact of our products throughout their entire life cycle. Accordingly, we use a concerted and disciplined approach to develop sustainable products and processes. To support this objective, a key aspect of our product development process is selecting sustainable and safe materials when manufacturing a product. We actively seek to avoid using chemicals of concern in new products and have been successful in removing these substances from many existing products through reformulation.

We have improved our PPG SIGMAFAST 278 product by the reduction and/or removal of Substances of Concern (SoCs) and have recertified the coating to confirm that there has been no adverse effect on performance. Based on these updated formulations, the products as supplied are no longer classified as Carcinogenic, Mutagenic and Reprotoxic (CMRs) under the Globally Harmonized System (GHS). This helps our customers not only with workplace safety and minimization of environmental impact but also in achieving their own sustainability goals. Please read PPG's Sustainability Report for more details.

Key Benefits



Easy to apply



Fast drying: Touch-dry after one hour and dry to overcoat after two hours at 20°C (68°F)



Wide temperature application range with only one curing agent: -5°C (23°F) to 40°C (104°F)



High solids:
80% of volume solids: less waste



No induction time



Broad application thickness range:
75–250 microns (3–10 mils)



Low-VOC content:
220 g/L (1.8 lb/USgal) maximum



Sustainable

Finding the correct ISO 12944 corrosion protection is as easy as 1,2,3.



Use the System Selector to find the correct PPG protection system for ISO 12944 compliance. There are three steps:

- 1 Define the corrosion environment category
- 2 Determine the ISO durability requirement
- 3 Select system based on project requirements

With these parameters, you can use the tables on pages (8-11) to choose the ISO 12944 corrosion protection system that's right for your job.

Importance of ISO 12944

ISO 12944 is an international standard on corrosion protection of steel structures by protective paint systems.

ISO 12944 is giving guidelines for the selection of paints available for different environments and different surface preparation grades, and the durability grade to be expected. It will avoid difficulties and misunderstandings between the parties concerned with the practical implementation of protection work.

Working with ISO 12944 will ensure the customer has:

- An effective corrosion protection
- An objective approach to select the coating system



Step 1: Define the corrosion category that matches your project's environment.

Corrosion category	Exterior	Interior
C1	Exterior conditions not applicable	Heated buildings with clean atmospheres, for example, offices, shops, schools, hotels
C2	Atmospheres with low level of pollution, mostly rural areas	Uncoated buildings where condensation can occur, for example, depots, sports halls
C3	Urban and industrial atmospheres, moderate sulfur dioxide pollution; coastal areas with low salinity	Production rooms with high humidity and some air pollution, for example, food processing plants, laundries, breweries, dairies
C4	Industrial areas and coastal areas with moderate salinity	Chemical plants, swimming pools, coastal ships and boatyards
C5	Industrial areas with high humidity and aggressive atmosphere and coastal areas with high salinity	Buildings or areas with almost permanent condensation and with high pollution
CX	Offshore areas with high salinity and industrial areas with extreme humidity and aggressive atmosphere and sub-tropical and tropical atmospheres	Industrial areas with extreme humidity and aggressive atmosphere

Step 2: Determine your ISO durability requirement.

Durability

Main factors influencing durability choice:

- Atmospheric conditions
- Structure design
- Accessibility of asset
- Application conditions

Durability is a technical consideration and planning parameter that can help you set up a realistic maintenance program by determining the expected life of a protective paint system from application to the first major maintenance painting. ISO categories for durability (L, M, H and VH) are defined in the table.

Durability	Years to first major maintenance
Low (L)	Up to 7 years
Medium (M)	7 years to 15 years
High (H)	15 years to 25 years
Very High (VH)	More than 25 years

Step 3: Select system based on project requirements.

Coatings and applications

Once you have defined the project's corrosion environment and durability requirements, reference the charts on pages 8-11 to select the best PPG coating system for ISO Sa 2½ grit blasted carbon steel, HDG and TSM based on your specific project requirements.



How to find the best PPG coating system.

This chart can help you decide which coating is best for your project needs; simply follow the steps outlined below.

Process:

Select:

1 Corrosion category

Select:

2 Durability

Select:

3 System

Example:

Industrial areas and coastal areas with moderate salinity

20 years expected before first major maintenance

Take into account the combination of dry times, gloss / color retention and number of coats that best match the needs of the project.

System Selection:

Selecting the most accurate parameters defines which paint system will fill your specific project needs and requirements.

C1 C2 C3 **C4** C5 CX



Low Medium **High** Very High



Fast dry: ★★★
Aesthetic durability: ★★



System Selection:
C4.06
PPG SIGMAFAST 278:
190 µm
PPG SIGMADUR 550H:
50 µm

PPG SIGMAFAST 278 certified systems

ISO12944-5

DFT Dry Film Thickness
ZnR Zinc Rich Epoxy Primer
ESI Ethyl silicate Zinc Rich Primer
EP Epoxy Primer / Buildcoat

PUR Polyurethane Topcoat
POL Polysiloxane Topcoat
NISO Non-isocyanate Topcoat

C2 coating systems

C2

HIGH DURABILITY											
System	Generic Type	Primer	DFT μm	Generic Type	Finish	DFT μm	Total number of coats	Total system DFT (μm)			
C2.05	EP	PPG SIGMAFAST 278	120				1	120	***	*	***

dry to handle times for full system: *** : ≤ 4 hrs; ** : ≤ 6 hrs; * : ≥ 8 hrs

gloss and color retention that can be expected for the technology of the final coat: *** POL; ** : PUR; * : EP

based on number of coats and cost effectiveness of the products: ***: 1 coat EP; **: 1 coat POL; *: 2 coats

VERY HIGH DURABILITY											
System	Generic Type	Primer	DFT μm	Generic Type	Finish	DFT μm	Total number of coats	Total system DFT (μm)			
C2.06	EP	PPG SIGMAFAST 278	90	EP	PPG SIGMAFAST 278	90	2	180	***	*	***
C2.06	EP	PPG SIGMAFAST 278	130	PUR	PPG SIGMADUR 550H	50	2	180	*	**	**
C2.06	EP	PPG SIGMAFAST 278	105	POL	PPG PSX 700	75	2	180	**	***	*

dry to handle times for full system: *** : ≤ 6 hrs; ** : ≤ 8 hrs; * : ≥ 14 hrs

gloss and color retention that can be expected for the technology of the final coat: *** POL; ** : PUR; * : EP

based on number of coats and cost effectiveness of the products: ***: 2 coats EP; **: 2 coats EP with PUR; *: 2 coats EP with POL

C3 coating systems

C3

HIGH DURABILITY											
System	Generic Type	Primer	DFT μm	Generic Type	Finish	DFT μm	Total number of coats	Total system DFT (μm)			
C3.06	EP	PPG SIGMAFAST 278	90	EP	PPG SIGMAFAST 278	90	2	180	***	*	***
C3.06	EP	PPG SIGMAFAST 278	130	PUR	PPG SIGMADUR 550H	50	2	180	*	**	**
C3.06	EP	PPG SIGMAFAST 278	105	POL	PPG PSX 700	75	2	180	**	***	*

dry to handle times for full system: *** : ≤ 6 hrs; ** : ≤ 8 hrs; * : ≥ 14 hrs

gloss and color retention that can be expected for the technology of the final coat: *** POL; ** : PUR; * : EP

based on number of coats and cost effectiveness of the products: ***: 2 coats EP; **: 2 coats EP with PUR; *: 2 coats EP with POL

C3 coating systems

C3

VERY HIGH DURABILITY											
System	Generic Type	Primer	DFT μm	Generic Type	Finish	DFT μm	Total number of coats	Total system DFT (μm)			
C3.07	EP	PPG SIGMAFAST 278	120	EP	PPG SIGMAFAST 278	120	2	240	***	*	***
C3.07	EP	PPG SIGMAFAST 278	190	PUR	PPG SIGMADUR 550H	50	2	240	*	**	**
C3.07	EP	PPG SIGMAFAST 278	190	PUR	PPG SIGMADUR 550	50	2	240	**	**	**
C3.07	EP	PPG SIGMAFAST 278	165	POL	PPG PSX 700	75	2	240	**	***	*

dry to handle times for full system: *** : ≤ 6 hrs; ** : ≤ 8 hrs; * : ≥ 14 hrs

gloss and color retention that can be expected for the technology of the final coat: *** POL; ** : PUR; * : EP

based on number of coats and cost effectiveness of the products: ***: 2 coats EP; **: 2 coats EP with PUR; *: 2 coats EP with POL

C4 coating systems

C4

HIGH DURABILITY											
System	Generic Type	Primer	DFT μm	Generic Type	Finish	DFT μm	Total number of coats	Total system DFT (μm)			
C4.06	EP	PPG SIGMAFAST 278	120	EP	PPG SIGMAFAST 278	120	2	240	***	*	***
C4.06	EP	PPG SIGMAFAST 278	190	PUR	PPG SIGMADUR 550H	50	2	240	*	**	***
C4.06	EP	PPG SIGMAFAST 278	190	PUR	PPG SIGMADUR 550	50	2	240	**	**	**
C4.06	EP	PPG SIGMAFAST 278	165	POL	PPG PSX 700	75	2	240	**	***	*

dry to handle times for full system: *** : ≤ 6 hrs; ** : ≤ 8 hrs; * : ≥ 14 hrs

gloss and color retention that can be expected for the technology of the final coat: *** POL; ** : PUR; * : EP

based on number of coats and cost effectiveness of the products: ***: 2 coats EP; **: 2 coats EP with PUR; *: 2 coats EP with POL

VERY HIGH DURABILITY														
System	Generic Type	Primer	DFT μm	Generic Type	Intermediate	DFT μm	Generic Type	Finish	DFT μm	Total number of coats	Total system DFT (μm)			
C4.11	ZnR	PPG SIGMAZINC 68 SP	50	EP	PPG SIGMAFAST 278	160	PUR	PPG SIGMADUR 520	50	3	260	**	**	*
C4.07	EP	PPG SIGMAFAST 278	150				EP	PPG SIGMAFAST 278	150	2	300	***	*	***
C4.07	EP	PPG SIGMAFAST 278	200				PUR	PPG SIGMADUR 550H	100	2	300	*	**	**
G4.06 (HDG)	EP	PPG SIGMAFAST 278	150				PUR	PPG SIGMADUR 550	50	2	200	***	**	**
TSM 4.02	EP	PPG SIGMAFAST 278	150				PUR	PPG SIGMADUR 550	50	2	200	***	**	**

dry to handle times for full system: ≤ 8 hrs; ** : ≤ 12 hrs; * : ≥ 14 hrs

gloss and color retention that can be expected for the technology of the final coat: *** POL; ** : PUR; * : EP

based on number of coats and cost effectiveness of the products: ***: 2 coats EP; **: 2 coats EP with PUR; *: 3-coats

PPG SIGMAFAST 278 certified systems

ISO12944-5

C5 coating systems

C5

HIGH DURABILITY														
System	Generic Type	Primer	DFT μm	Generic Type	Intermediate	DFT μm	Generic Type	Finish	DFT μm	Total number of coats	Total system DFT (μm)			
C5.07	ZnR	PPG SIGMAZINC 68 SP	50	EP	PPG SIGMAFAST 278	160	PUR	PPG SIGMADUR 520	50	3	260	**	**	*
C5.03	EP	PPG SIGMAFAST 278	150				EP	PPG SIGMAFAST 278	150	2	300	***	*	***
C5.03	EP	PPG SIGMAFAST 278	200				PUR	PPG SIGMADUR 550H	100	2	300	*	**	**
G5.04 (HDG)	EP	PPG SIGMAFAST 278	150				PUR	PPG SIGMADUR 550	50	2	200	***	**	**
TSM 5.01	EP	PPG SIGMAFAST 278	150				PUR	PPG SIGMADUR 550	50	2	200	***	**	**

dry to handle times for full system: ≤ 8 hrs; **: ≤ 12 hrs; *: ≥ 14 hrs

gloss and color retention that can be expected for the technology of the final coat: *** POL; **: PUR; *: EP

based on number of coats and cost effectiveness of the products: ***: 2 coats EP; **: 2 coats EP with PUR; *: 3-coats

VERY HIGH DURABILITY														
System	Generic Type	Primer	DFT μm	Generic Type	Intermediate	DFT μm	Generic Type	Finish	DFT μm	Total number of coats	Total system DFT (μm)			
C5.08	ZnR	PPG SIGMAZINC 68 SP	50	EP	PPG SIGMAFAST 278	220	PUR	PPG SIGMADUR 550	50	3	320	**	**	**
C5.08	ZnR	PPG SIGMAZINC 68 SP	50	EP	PPG SIGMAFAST 278	195	POL	PPG PSX 700	75	3	320	**	***	*
C5.08	ESI	PPG DIMETCOTE 9	50	EP	PPG SIGMAFAST 278	220	PUR	PPG SIGMADUR 550	50	3	320	*	**	**
G5.05 (HDG)	EP	PPG SIGMAFAST 278	190				PUR	PPG SIGMADUR 550	50	2	240	***	**	***
TSM 5.02	EP	PPG SIGMAFAST 278	190				PUR	PPG SIGMADUR 550	50	2	240	***	**	***

dry to handle times for full system: ***: ≤ 8 hrs; **: ≤ 12 hrs; *: ≥ 32 hrs

gloss and color retention that can be expected for the technology of the final coat: *** POL; **: PUR; *: EP

based on number of coats and cost effectiveness of the products: ***: 2 coats; **: 3 coats with PUR; *: 3 coats with POL

DFT Dry Film Thickness
ZnR Zinc Rich Epoxy Primer
ESI Ethyl silicate Zinc Rich Primer
EP Epoxy Primer / Buildcoat

PUR Polyurethane Topcoat
POL Polysiloxane Topcoat
NISO Non-isocyanate Topcoat

Cx coating systems

Cx

HIGH DURABILITY													
Generic Type	Primer	DFT μm	Generic Type	Intermediate	DFT μm	Generic Type	Finish	DFT μm	Total number of coats	Total system DFT (μm)			
EP	PPG SIGMAFAST 278MIO	200	EP	PPG SIGMAFAST 278	100	PUR	PPG SIGMADUR 550H	50	3	350	**	**	***
ZnR	PPG SIGMAZINC 68 SP	60	EP	PPG SIGMAFAST 278	170	PUR	PPG SIGMADUR 520	50	3	280	***	**	**
ESI	DIMETCOTE 9	60	EP	PPG SIGMAFAST 278	170	PUR	PPG SIGMADUR 520	50	3	280	*	**	**

dry to handle times for full system: ***: ≤ 12 hrs; **: ≤ 16 hrs; *: ≥ 32 hrs

gloss and color retention that can be expected for the technology of the final coat: *** POL; **: PUR; *: EP

based on number of coats and cost effectiveness of the products: ***: EP system; **: ZnR system with PUR; *: ZnR system with POL

NORSOK M501 Rev. 6

SYSTEM 1			
Application	Surface preparation	Coating system	Minimum DFT (μm)
Carbon steel with maximum operating temperature < 120°C	Cleanliness: ISO8501-1 Sa 2.5	1 coat zinc rich primer	60
	Roughness: ISO8503 Grade Medium G (50-85μm)	Minimum number of coats: 3 Minimum DFT of complete coating system:	280

SYSTEM 1													
Generic Type	Primer	DFT μm	Generic Type	Intermediate	DFT μm	Generic Type	Finish	DFT μm	Total number of coats	Total system DFT (μm)			
ZnR	PPG SIGMAZINC 109HS	60	EP	PPG SIGMAFAST 278	170	PUR	PPG SIGMADUR 520	50	3	280	***	**	***
ZnR	PPG SIGMAZINC 68 SP	60	EP	PPG SIGMAFAST 278	170	NISO	PPG SIGMADUR 540	50	3	280	**	**	***
ZnR	PPG SIGMAZINC 68 SP	60	EP	PPG SIGMAFAST 278	170	PUR	PPG SIGMADUR 520	50	3	280	***	**	***
ZnR	PPG SIGMAZINC 68 SP	60	EP	PPG SIGMAFAST 278	140	POL	PPG PSX 700	80	3	280	***	***	**
ESI	PPG DIMETCOTE 9	60	EP	PPG SIGMAFAST 278	170	PUR	PPG SIGMADUR 550	50	3	280	*	**	*
ESI	PPG DIMETCOTE 9	60	EP	PPG SIGMAFAST 278	140	PUR	PPG SIGMADUR 550H	80	3	280	*	**	*

dry to handle times for full system: ***: ≤ 12 hrs; **: ≤ 16 hrs; *: ≥ 38 hrs

gloss and color retention that can be expected for the technology of the final coat: *** POL; **: PUR; *: EP

based on cost effectiveness and application friendliness of the products: ***: system with PUR/NISO; **: system with POL; *: system with ESI



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