

**PROTECTIVE COATINGS**

*solutions that cover your needs*



**SIGMA  
COATINGS**

A PPG Brand

# **SIGMA***Line* 2000/2500

Phenolic epoxy technology for oil,  
gas and water pipelines



PPG Protective & Marine Coatings

# Pipeline Protection

*Designed to give outstanding long-term service in the harshest environments*

SigmaLine 2000 and SigmaLine 2500 provide protection under extreme conditions

- Excellent anticorrosion protection
- Enhanced resistance to cathodic protection at lower film thickness than a three-layer polyolefin
- Superior abrasion and impact resistance
- Suitable for operating temperatures up to 100°C
- Outperforms standard systems in key tests

In addition both products have exceptional application properties

- Direct to steel application
- Fast-curing for increased process speed
- Single-coat application
- Can be applied at pipe wall temperatures up to 90°C
- Suitable for field joint applications

## Cutting-edge coatings technology

For decades standard solvent-free epoxy and polyurethane coatings have been used as a reliable alternative to traditional three-layer systems for the protection of steel pipelines, generally with good results. However, the increased focus on extending service life and reducing maintenance costs has caused many pipeline owners to look beyond existing solvent-free epoxy, polyurethane and three-layer technology to the next generation of pipeline coatings.

Sigma Coatings' products are renowned as setting the standard in phenolic epoxy solvent-free coating technology, with an extensive successful track record in chemical-resistant and abrasion/impact resistance service. The latest developments in this phenolic epoxy range are the pipeline coatings SigmaLine 2000 and SigmaLine 2500 which have been specially formulated for long-term, high-performance in the harshest environments.

These products were originally developed for the coating of deepwater offshore oil pipelines, where operating temperatures can easily reach 100°C and conventional solvent-free epoxy, polyurethane and three-layer systems typically fail. Where these systems fail, the SigmaLine 2000 and SigmaLine 2500 provide excellent corrosion resistance, mechanical and chemical resistance, combined with extremely good resistance to cathodic protection.

These properties make our coatings the most effective solution for the externals of land and sea-based oil, gas and water pipelines where long-term performance is required.

## PPG Protective & Marine Coatings

*Unrivalled performance and protection*

*PPG Protective & Marine Coatings (PMC) is a world leader in protective and marine coatings.*

*We create proven products that protect customers' assets in some of the world's most demanding markets including:*

- Civil building
- Infrastructure
- Offshore
- Petrochemical
- Power
- Rail
- Marine new-build
- Marine dry dock
- Marine sea stock

*Our coatings are unrivalled in performance and protection among asset owners, contractors, fabricators and applicators across the globe, helping customers meet the challenges they face today, and tomorrow.*

*Experience, innovation and integrity – that's what makes PMC the ideal coatings partner.*





## SigmaLine 2000 and SigmaLine 2500 external pipe coatings

	SigmaLine 2000	SigmaLine 2500
Application	Onsite	In-shop
Equipment	Single-feed airless	Twin-feed airless
Volume solids	100%	100%
Specified film thickness	600 – 1500 microns	600 microns
Film build per coat	Up to 1500 microns @ 90°C steel temperature	Up to 600 microns @ 90°C steel temperature
Dry-to-handle	10 hrs @ 30°C	20 mins @ 70°C
Pot life	45 mins @ 30°C	3 mins @ 70°C
Temperature resistance	100°C	100°C
Chemical resistance	Excellent	Excellent
Cathodic protection resistance	Excellent	Excellent
Mechanical resistance	Excellent	Excellent
Adhesion to fusion-bonded epoxy*	Excellent	Excellent
Adhesion to polyethylene/polypropylene*	Good	Good

\* After suitable surface pretreatment

**SigmaLine 2000** is a solvent-free, phenolic epoxy designed for onsite maintenance applications. It's longer potlife and workability enable application using standard single-feed, airless equipment. It's also ideal for bell-holing work, and can be applied at high-film thicknesses in a single coat to substrates with temperatures up to 90°C. This workability, combined with excellent adhesion to both steel and fusion-bonded epoxy, plus good adhesion to polyethylene/polypropylene, means that SigmaLine 2000 is extremely efficient as a field joint/repair coating.

**SigmaLine 2500** is a solvent-free, phenolic epoxy designed for pipe mill applications where speed of cure and handling is critical. It's applied by twin-feed, airless equipment in a single coat of 600 microns on rotating pipes with substrate temperatures up to 90°C, allowing efficient application and fast pipe handling. SigmaLine 2500 is also suitable for field joints, with excellent adhesion to steel and fusion-bonded epoxy, and also good adhesion to polyethylene/polypropylene. A ten-minute dry-to-handle time, equates to potentially twenty field joints per hour.

Both SigmaLine 2000 and 2500 have been tested and approved to the Saudi Aramco APCS 113 standard for oil pipelines and are compatible with pipe wall thickness measurements using either X-ray or ultrasonic methods.

# PPG Protective & Marine Coatings

PPG Protective & Marine Coatings brings unrivalled levels of innovation, experience and expertise in coatings technology, supported through our expanding global supply and distributors' network in over 80 countries.

We have in-depth knowledge of the industry, our customers' day-to-day challenges and the environmental, health and safety standards in the marketplace. By working in close partnership with customers, our technical service representatives are able to offer an unsurpassed level of market knowledge. This enables us to respond quickly with efficient, economic solutions in all environments and industries.

The result – performance-enhancing coating systems that can be applied more easily, resist the elements more effectively, and deliver maximum performance with minimum downtime.

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