

PPG: Our protective and marine coatings business

A truly innovative global organization that protects and extends the lifetime of your assets



PPG: Our protective and marine coatings business

Unrivaled performance and protection

We develop coatings that enhance and protect a wide range of assets in some of the most demanding industries and environments across the globe.

Our vision is to be the world's leading and customer preferred protective and marine coatings company by consistently delivering high quality, innovative and sustainable solutions that our customers trust to protect and beautify their assets and surroundings.

We are experts in anticipating the evolving needs of our customers. Knowing what people require next, and having the ability and passion to invest the energy, time and resources to make it happen is the hallmark of a world-class supplier.

Our customers depend on our products and services to stand the test of time and contribute to their success.

Our customers:

- Asset owners
- Engineering firms
- Fabricators
- Applicators
- OEMs
- Contractors
- Shipyards
- Management companies

Markets we serve:



Marine



Oil, Gas &
Chemical



Civil
infrastructure



Power



Mining



Rail



Plants &
Facilities



PPG's global structure and heritage

We work every day to develop and deliver the paints, coatings and materials that our customers have trusted for more than 130 years. Through dedication and creativity, we solve our customers' biggest challenges, collaborating closely to find the right path forward. With headquarters in Pittsburgh, Pennsylvania, we operate and innovate in more than 70 countries and reported net sales of \$14.8 billion in 2017.

High ethical standards are a vital part of our culture

Believing that excellence in business and high ethical standards go hand in hand, we are committed to:

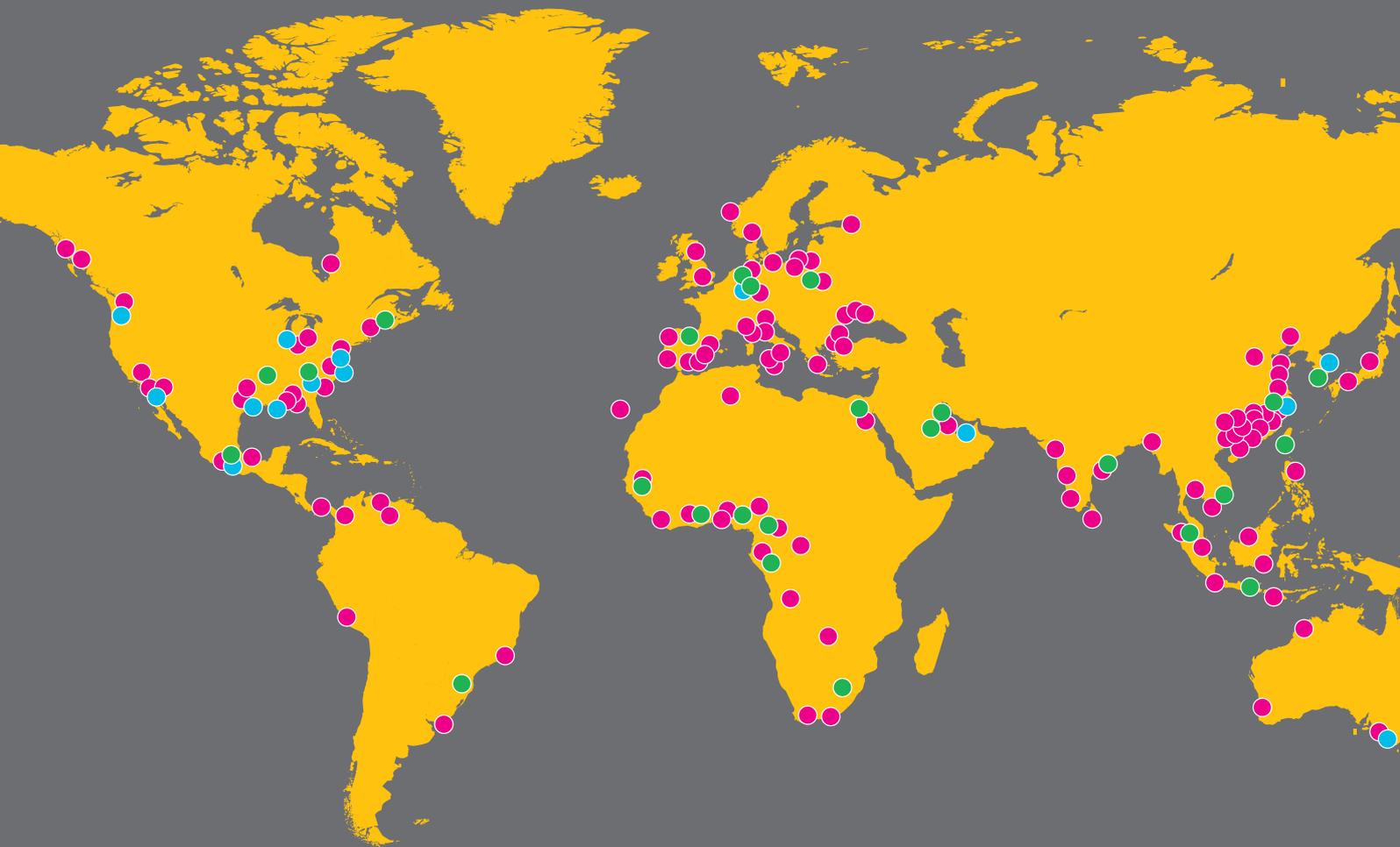
- Developing goods and services that meet our customers' and society's needs
- Providing employees with a safe, healthy and fulfilling work environment
- Providing our shareholders a superior return on investment
- Contributing as a good corporate citizen to each nation and community in which we operate



Worldwide locations

Global reach and local expertise

Although we provide products and services to the global marketplace, day-to-day operations with customers are closely managed at a local level. We have account managers and customer service teams located in every part of the world, giving you complete support when and where you need it. Strategically located storage depots and color network centers support this function, providing a worldwide service that is second-to-none.



-  Manufacturing
-  Stock point
-  Hub / Distribution center



Quick deliveries

We have over 120 stock points, 16 hub and distribution centers, and 35 manufacturing facilities spread across all continents, along with thousands of stores and authorized dealers. This enables us to provide a global delivery service that is both fast and reliable.



World-class manufacturing facilities

Our state-of-the-art manufacturing facilities and laboratories are regularly assessed to guarantee consistent product quality and performance worldwide.



Global Technology Centers

Our research and development is globally integrated, with laboratory locations and scientists in the primary regions where we operate. This model combines Global Technology Centers together with local business support.

Service and support

Delivering customer value every time

Customer value is a core principle and part of our DNA. It drives all our actions. We are proud to have a dedicated, knowledgeable workforce. You will find us easy to work with, friendly and professional, with a genuine desire to deliver improved value at all times.

For us, coating innovation is more than just asset protection.



47,200 employees
protecting and
beautifying our world.

Our six core innovation drivers

Asset protection	Improving the long-term anticorrosive performance and durability of our paint systems to reduce maintenance procedures during the lifetime of our customers' industrial assets.
Safety	Special product innovation to support the safe living or working conditions in and at buildings or industrial assets. Our primary safety innovation is related to passive fire protection products. We have also developed and provide heat-resistant spray-on insulation products.
Application productivity	Reducing the time and labor required to apply and cure the recommended paint systems, therefore reducing the cycle time from surface preparation to (re) use of the asset being coated.
Substrate tolerance	Improving the tolerance of our coating systems towards marginally prepared substrates such as mechanically cleaned substrate, instead of full dry grit blasted substrates. Also included are high pressure water jetted steel substrates being either damp or flash rusted.
Environment and Health	Engineering and developing our product lines in ways that comply with environmental legislation, chemical inventories and biocidal regulations. We focus on anticipating environmental challenges and applicators' health needs in order to offer leading sustainable product/system solutions.
Energy saving	Innovating to reduce energy consumption of our customers. This leads to significant cost savings and also brings environmental benefits such as fuel savings that may lead to the reduction of greenhouse gas emissions.

Pioneering technologies

Innovation never rests. We take proven technology and develop it further

In addition to our standard and proven anticorrosive systems, substantial research and development investment is directed towards the innovation of:

- Passive protection for hydrocarbon fire and cryogenic protection of chemical, petrochemical, and offshore facilities; and cellulosic fire protection for infrastructure projects
- Heat resistant system and spray-on insulation coatings
- Chemical resistant tank linings for land storage tanks and commercial shipping
- Fouling protection on seagoing vessels, which can be either biocidal antifouling or biocide-free fouling release coatings
- High performance topcoats which provide ease of use and/or unsurpassed durability

Key PPG coating solutions:

- **Tank linings**
PPG NOVAGUARD™, PPG PHENGUARD™
- **Cargo hold coatings**
PPG SIGMASHIELD™
- **Top coats**
PPG PSX®, PPG SIGMADUR™, PPG AMERCOAT
- **Antifouling/fouling release coatings**
PPG SIGMA SAILADVANCE™, PPG SIGMAGLIDE®, PPG SIGMA NEXEON™, PPG SIGMA ECOFLEET®
- **Water ballast tank coatings**
PPG SIGMAPRIME®, PPG SIGMACOVER™
- **High-temperature resistant coatings**
PPG HI-TEMP™
- **Hydrocarbon passive fire protection**
PPG PITT-CHAR®
- **Cellulosic passive fire protection**
PPG STEELGUARD™

Here are just some examples of our latest pioneering technologies...

PPG STEELGUARD™ 601 and 651: Waterborne intumescent technology

Having worked closely with architects and designers around the world, we understand the pressure to specify 'greener' products. We have responded by investing in the research and development of waterborne intumescent technology that not only buys time, saves lives and limits asset damage, but offers the additional environmental benefits of being low VOC and virtually odorless.

PPG PITT-CHAR® XP: The flexible, single-product solution for fire and cryogenic spill protection

Specially formulated for the oil and gas industries, the PPG PITT-CHAR XP coating is the only patented flexible epoxy intumescent on the market. PPG PITT-CHAR XP is a single coating solution that provides protection in extreme conditions against hydrocarbon hazards such as explosions, impacts, fires and cryogenic spills. Unlike rigid epoxy intumescent coatings, the PPG PITT-CHAR XP product is tough and ductile with an elongation of 20%. The unique flexibility of the coating also reduces impact and abrasion damage during construction, reducing subsequent remedial repairs and, once in service, any subsequent repair work due to mechanical damage and other defects.



PPG PSX® ONE:
**Durability and protection of two chemistries
in one product**

PPG PSX ONE is another example of our forward-thinking approach. This revolutionary patented acrylic siloxane hybrid system is designed specifically for asset owners and contractors. Providing outstanding color retention, this product retains its gloss after many two-pack polyurethane topcoats have begun to fade. The PPG PSX ONE topcoat is a new product formula that leverages our existing patents and more than two decades of expertise. The benefits of the PPG PSX ONE are consistent with the other PPG polysiloxane technologies with the added advantage that it provides a one-pack solution. This reduces waste and gives additional convenience to the customer, particularly in the case of maintenance and repairs.

Major benefits:

- Superior color and gloss retention
- Excellent weatherability
- Excellent abrasion resistance
- Excellent adhesion
- Low VOC emission
- High volume solids
- One-component, no mixing procedures
- No pot life concerns, less waste
- Easy to apply by brush or roller

PPG SIGMA SAILADVANCE™ RX and GX :
**Advanced low-friction, self-lubricating antifoulings
with extended idle times**

We developed our innovative range of PPG SIGMA SAILADVANCE antifouling coatings with the goal of reducing energy consumption and therefore lowering total operational costs. Thanks to an innovative self-smoothing mechanism, PPG SIGMA SAILADVANCE antifoulings are proven to deliver fuel savings averaging 5%.

The latest additions to this range, PPG SIGMA SAILADVANCE RX and GX, boast innovative self-release binder technology, which utilizes PPG's patented Controlled Surface active Polymers (CSPs). This unique composition means these coatings are particularly effective for slow-steaming ships.

The CSPs act as a lubricant on the coating/water interface, supporting laminar flow and thereby reducing hull friction when the ship is sailing. They also create a slippery surface that resists fouling when the ship is not sailing. This extends possible idle time by up to 30 days on average without affecting the hull's performance.



Left image:
Traditional coating

Right image:
PPG SIGMA
SAILADVANCE RX/GX
showing the release
effect of CSPs creating
a slippery surface and
low friction properties

Sustainability at PPG

Protecting assets, people and the environment

PPG's dedication to sustainability goes beyond simply making products. It is our mission not only to protect our customers' assets, but to safeguard people and the environment.

For this purpose, we have developed a detailed Environmental, Health and Safety (EHS) Policy and appointed a dedicated Sustainability Committee to ensure continuous improvement in our global operations. Our sustainability vision and values provide the foundation for all of our sustainability efforts.

Vision

We are committed to delivering lasting value for shareholders and customers by operating with integrity, working safely, respecting the contributions of our people, preserving the environment and supporting the communities where we operate.

Values

- Operate safe, healthy workplaces that value diversity, promote teamwork and reward performance
- Conduct business and operations in an ethical and compliant manner
- Minimize the impact of our operations on the environment
- Deliver inventive products and solutions that help our customers to maximize the performance of their assets, minimize environmental impact and preserve and protect the environment
- Partner with suppliers and customers to create value
- Deliver positive change in the communities where we operate
- Deliver a superior return on investment to our shareholders

Health and Safety

Our goal: everybody goes home safe every day

We are committed to designing, building and operating our facilities in ways that:

- Protect the health and safety of our people
- Prevent harm to public health and the environment
- Conserve energy, water and raw materials
- Integrate pollution prevention
- Make a positive contribution to the surrounding community and society

We achieve this by:

- Operating safe workplaces; we manufacture, sell and distribute products in a manner that is safe and healthy for our employees, neighbors, customers, and environmentally friendly
- Implementing global processes to track and respond to new regulations and emerging issues
- Implementing initiatives to improve employee safety, health and wellbeing, reducing the PPG injury and illness rate



Thanks to this approach, from 2003 to 2017, we reduced our work-related injury and illness rate by 75%. We estimate that our risk-reduction efforts have prevented nearly 4,900 PPG injury and illness cases globally.

PPG COLORFUL COMMUNITIES™
Contributing to society

In 2015, PPG embarked on a ten-year, \$10 million initiative to enhance and beautify the communities where we operate with the use of our paints and coatings. From painting over graffiti to giving local classrooms a makeover to inspire and bring joy to young people, our employee volunteers are bringing new life and vitality to neighborhoods all over the world.





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