

Interbond® 2340UPC

- Excellent DFT tolerance to over-application reduces rework costs
- Short overcoating intervals maximize productivity during the application process
- Low temperature cure, down to -5°C (23°F), reduces heating costs in the winter months
- Reduced coating system complexity allows applicators to increase productivity
- Easier stock management, reducing wasted stock

Application of next generation CUI prevention based on Alkylated Amine technology

Interbond 2340UPC can deliver
Cost reduction
 up to

10%

Maintenance managers and applicators in the oil and gas industry are under increasing pressure to increase efficiency. Often, this means finding synergistic solutions and identifying ways to limit complexity. Our customer, a coating applicator at a major petrochemical facility in Europe, was looking for ways to reduce coating coats. On previous projects, the challenge of coating specification complexity had caused:

- **Reduced productivity at the application stage**
- **Increased chance of errors requiring rework, adding application cost**
- **Increased rework costs onsite during the construction phase as equipment arriving with the incorrect coating system for the final operating environment was reworked to a correct coating**
- **Increased risk of CUI and other corrosion issues on the finished plant, increasing Maintenance and repair costs**

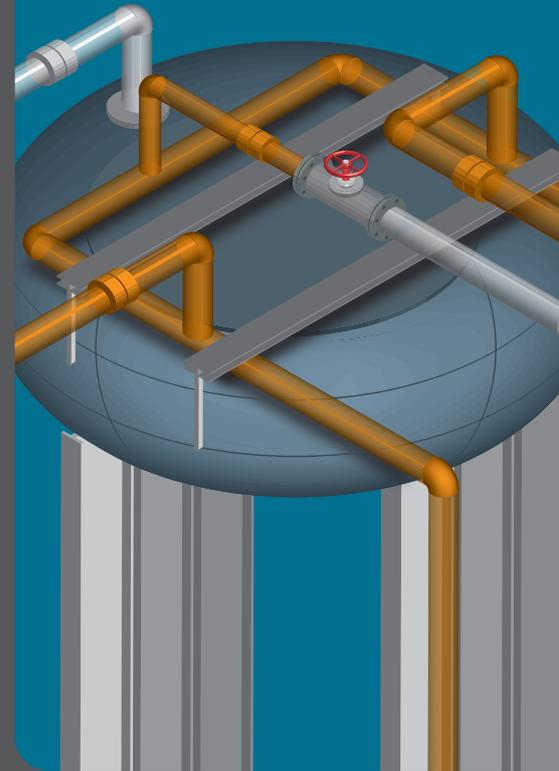
The major challenge was the massive complexity of the project which contributed to a large rework spend and reduced productivity. Traditional coating systems are designed to offer corrosion protection over a limited range of service environments and temperatures, which means that on previous projects, more than seven different coatings were needed to protect the various pipes, valves and vessels. This subsequently meant that training was difficult with a painting workforce that refreshed often depending on workload, and so the challenge was on to cut costs and guarantee delivery of the maintenance project on time. Traditional anti-corrosive solutions had been shown to add cost and complexity, so the applicator and facility maintenance manager decided to look for a proven and reliable alternative solution.

After discussion with International Protective Coatings, the decision was taken to apply the Universal Pipe Coating approach to the project, using one 'UPC' to paint all pipes, valves and vessels.

Standardizing the approach to coating specification greatly simplified the painting process, increasing productivity and improving quality. Interbond 2340UPC is a temperature resistant coating from International providing excellent corrosion protection from -196°C (-321°F) to 230°C (446°F).

Designed to maximize productivity vs. traditional epoxy phenolic and inorganic zinc silicate type systems, Interbond 2340UPC can help applicators and facility managers to reduce costs, avoid rework and maximize plant efficiency despite the complexity and interdependent nature of the problem.

Applying the 'UPC Approach' with Interbond 2340UPC to all pipes, valves and vessels saved approximately 10% on overall rework costs over the course of the maintenance project, as well as greatly improving productivity and helping to ensure the maximum performance in operation.



Advanced efficiency

The complexity of oil and gas maintenance means that applicators and engineers are never short challenging problems. Our customer, responsible for the maintenance of a major oil refinery in Norway, was faced with the stubborn challenge of a vessel whose previous epoxy coating kept failing during the ~200°C high temp annual steam cleanings. The vessel also lay just below some complex pipe-work, making maintenance access and DFT tolerance an issue. They contacted International Protective Coatings in search for a solution that provided enough coating flexibility to account for ambient operating temperatures and the required high temp spikes for maintenance.

Interbond 2340 was chosen due to the fact that it can operate in extreme cold or hot conditions, ideal for such a vessel that despite a particularly high-temp annual cleaning requirement, would normally only require a standard protective coating. The applicator was extremely pleased with the DFT tolerance during application and the coating proved to be a very effective solution for this troublesome tank providing excellent corrosion and UV resistance under a wide range of operating and, critically, maintenance temperatures too!

A Proven Global Solution

International Protective Coating is proud of its global footprint, partnering with coating applicators all over the globe to solve complex maintenance problems relating to CUI. From an onshore refinery in Australia to an offshore LPG facility in Indonesia, or from a petrochemical facility in Europe to an oil refinery in Singapore, flexible coating UPC solutions from Interbond 2340 deliver excellent application benefits on a variety of equipment operating at truly extreme temperatures.

Facilitating these diverse solutions are Interbond 2340UPC's unique application benefits:

- **Low temperature cure, down to -5°C (23°F), reduces heating costs in the winter months**
- **Excellent corrosion protection from -196°C (-321°F) to 230°C (446°F)**
- **Superior DFT tolerance, with minimal worry about cracking to over or under coated areas.**
- **Superb UV resistance**

Understanding the CUI Challenge

Traditionally, insulated pipework operating at elevated (or very low) temperatures has been coated using epoxy phenolic technology; this provides robust corrosion protection during downtime and excellent heat resistance in service. However, this traditional technology does come with some widely-recognized limitations from a quality assurance and productivity viewpoint at the point of application. Costs are driven higher by dry film thickness sensitivity and potential for in-service cracking, as well as slow drying/curing speeds, particularly at lower temperatures.

AAE (Alkylated Amine Epoxy) technology delivers the right balance of benefits for both the applicator and the asset owner, increasing confidence that the performance expectations inherent within the maintenance repairs are delivered and helping to greatly reduce the risk of CUI. Delivering superb ambient temperature ISO12944-9 resistance, Interbond 2340UPC truly is a next generation pipe coating, allowing simplicity in application and specification, resulting in increased confidence for asset protection and improved application flexibility vs traditional coating solutions.

Diving deeper...

Corrosion under insulation (CUI) costs industry millions of dollars annually. Moisture ingress into conventional insulation materials usually results in accelerated corrosion of the underlying steel surface, which can result in structural failure of the pipe, vessel or other insulated item. If left unchecked, CUI can result in leakage from pipes and vessels as a result of localized corrosion. If such equipment is operating under high pressure, this increases the potential for catastrophic failure. CUI is generally a risk in the temperature range of -4°C to 175°C (25°F to 347°F) but the highest corrosion rates are normally experienced in operational conditions between 60°C to 120°C (140°F to 248°F). Under these conditions, corrosion rates of between 1.5 - 3.0mm per year have been reported, and the potential for corrosion doubles for every 15 - 20°C increase in temperature between 0 - 100°C (32 - 212°F). The oil and gas market uses continuous high temperatures and has a wide variety of process conditions, which inevitably involve heat and cyclic conditions. Environmental conditions can be extremely harsh and thermal cyclic conditions impose a high degree of stress upon coatings which can result in a loss of physical properties. Steam-out cleaning and short but severe temperature spikes can also create cyclic conditions which accelerate corrosion.

The next generation alternative

Interbond 2340UPC

The fact that Interbond 2340UPC delivers flexibly and efficiently cover a wide variety of both insulated and uninsulated vessels, pipes, and valves (Universal Pipe Coating), makes it a potential game changer for applicators and specifiers alike in terms of high efficiency, fast cure in low temperatures, excellent CUI and UV resistance, while delivering the reliability certainty required in our industry. Interbond 2340UPC from International Protective Coatings is the Next Generation of coating protection against CUI.