Maximizing plant performance
Maintenance Solutions for Downstream Oil & Gas
Reliable and forward-looking maintenance for ultimate plant efficiency.
Plant owners in the Downstream Oil & Gas industry need the confidence that their assets are safe, and that maintenance time and costs are under control.

Through the International® brand, AkzoNobel offers the coating systems, knowledge and experience for reliable and forward-looking maintenance.

Now you can efficiently maximize plant performance, while shortening turnaround times and eliminating unplanned shutdowns.

**Coating intelligence.**

Our solutions

- CUI & Cyclic Temperature Solutions
- Petroleum Tank Linings
- Passive Fire Protection
- Damp Surface Solutions
- Chemical Resistant Linings
- Reliability Assessment Services
- Atmospheric Corrosion Solutions
- Concrete Repair & Protection
Damage caused by Corrosion Under Insulation and cyclic high temperatures is a common and ongoing threat to asset integrity in Oil & Gas facilities. That’s why our maintenance coatings provide reliable long-term resistance against these challenging conditions – as part of ongoing maintenance operations.

- **Achieve confidence in the safety of your asset**
- **Reduce downtime through efficient application**
- **Preempt the leading cause of asset corrosion**

### Proof of Performance: Motiva Convent

<table>
<thead>
<tr>
<th>Products</th>
<th>Intertherm® 751 CSA @75-100μm (2-4 mils) DFT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Louisiana, US</td>
</tr>
<tr>
<td>Type of project</td>
<td>Refining</td>
</tr>
<tr>
<td>Project owner</td>
<td>Motiva</td>
</tr>
<tr>
<td>Applicator</td>
<td>Basic Industries</td>
</tr>
<tr>
<td>Area coated</td>
<td>4.6m (15ft) diameter × 14.6m (48ft) length bullet tanks</td>
</tr>
</tbody>
</table>

**Area inspected 1**

After three years, less than 10cm² (4inch²) of breakdown was found on this uninsulated vessel. The product successfully used was Intertherm 751 CSA at 75-100μm (3-4 mils) DFT.

**Area inspected 2**

The insulated bullet tank was also coated with Intertherm 751 CSA at 75-100μm DFT (3-4 mils) with service temperatures at 48°C (119°F) to 114°C (238°F). On-site application of Intertherm 751 CSA is specifically designed to provide a corrosion resistant barrier to steelwork in both atmospheric service and under insulation operating in thermal cyclical conditions between -50°C (-58°F) and up to 400°C (752°F).
With proven performance in protecting hydrocarbon storage tanks, our petroleum tank linings deliver reliable corrosion resistance for the full length of each tank’s maintenance interval of up to 20 years. Efficient application properties also minimize return to service times, letting you get the most out of your storage tanks.

**Proof of Performance: High Temperature Resistant, Fibre Reinforced Lining**

<table>
<thead>
<tr>
<th>Products</th>
<th>Envirole 376F-60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>UK</td>
</tr>
<tr>
<td>Equipment</td>
<td>Venezuelan Crude Oil Storage Tank at 85°C (185°F)</td>
</tr>
</tbody>
</table>

**Quick Application**

Envirole 376F-60 can be quickly applied in one coat of 1250μm including reinforcement.

**High Heat Resistance**

Envirole 376F-60 can withstand continuous immersion in crude oil up to 90°C (194°F).

**Fast Cure**

After 14 hours cure at 23°C (73°F) the tank can be returned to service due to the rapid cure of Envirole 376F-60.
Passive Fire Protection

Versatile PFP Solutions

Our Chartek range includes the most widely used Passive Fire Protection coatings in the world, with proven performance and the versatility to meet a wide range of certifications, application climates and operating conditions. This versatility is ideal for maintenance, delivering advanced fire protection suitable for any asset or timeframe.

- Long-term, corrosion-resistant PFP
- Smooth application, reducing job times
- PFP Severity Assessment Services provide informed advice

Proof of Performance: M320 Module

<table>
<thead>
<tr>
<th>Location of application</th>
<th>Palmetto, FL, US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products</td>
<td>Chartek® 1709 epoxy intumescent 7,235 kg (15,950 lbs)</td>
</tr>
<tr>
<td>Buying customer</td>
<td>Petrochem Industrial</td>
</tr>
<tr>
<td>Influencing customer</td>
<td>Air Products &amp; Chemicals, Inc.</td>
</tr>
<tr>
<td>Fixed asset condition</td>
<td>FRP application</td>
</tr>
</tbody>
</table>

The solution
FRP system: Chartek 1709 was applied on the first six story floors, at mid-film thickness, while HK-1 Mesh was embedded/applied into the wet material and rolled thoroughly with lightly dampen solvent. Afterwards applications continued building up with more Chartek 1709 for full thickness layer. Total DFT thickness were between 360-480 mils (9-12 mm).

Chartek rating
A 90 minute rating was required by the owner.
Damp surfaces adjacent to cooling towers can provide a challenge, as there is the risk of corrosion, but shutting down cooling towers is not an option. Our proven coating solutions can be applied over continuously damp surfaces and during regular operations. The single coat application reduces turnaround time by minimizing surface preparation requirements.

**Proof of Performance: KBC 8” pipe maintenance work at Liquid Chemical Berth (LCB)**

- **Location of application**: Malaysia
- **Products**: Interzone® 954, Interthane® 990
- **Project owner**: Kemaman Bitumen Company Sdn Bhd (Refinery)
- **Applicator**: Epic Tubex Sdn Bhd
- **Fabricator**: Sumatec Sdn Bhd
- **ISO12944 environment**: C5X
- **Area coated**: 380m² (4,090 sq ft)
Chemical Resistant Linings

Protecting Concrete and Steel

Advanced linings preserve both concrete and steel

Rapid installation minimizes costly downtime

Comprehensive protection against hazardous chemicals

From hydrocarbons to concentrated acids, many industrial chemicals have an aggressive effect on concrete and steel. Our range of chemical resistant linings provide proven protection and improved safety for both employees and the environment.

Reliability Assessment Services

Extending Asset Lifetime

At AkzoNobel, we have an in-depth understanding of the challenges involved in the maintenance cycles of Oil & Gas facilities. Our Interplan™ and Intersure™ services provide on-site support and technical recommendations to develop cost-effective maintenance programs.

- Extend the lifetime of your Oil & Gas assets
- Get the most out of your maintenance budget
- Easily keep track of progress and the value of work
Atmospheric Corrosion Solutions

Resist Corrosion in All Conditions

- Protect your assets safely and responsibly
- Save on the time and cost of application
- Extend asset performance and maintenance intervals

Our range of atmospheric corrosion solutions are optimized to protect your assets against the worst environmental conditions. Ideal for application during both regular operations and planned shutdowns, helping to minimize maintenance costs.

Concrete Repair & Protection

Comprehensive Protection, Minimal Downtime

Aging concrete often requires repair and renewed protection, and our Intercrete™ range is the perfect solution. Minimize downtime and ensure full protection on any areas of concrete, from foundations and channels to secondary containment areas.

100% water-based, free from VOCs
0 no lengthy drying times
28 h products cure in just 28 hours
**Why us?**

The essence of maintenance is achieving maximum plant performance, by making sure that every part of a complex system is working together perfectly.

Through the International brand, AkzoNobel delivers coating systems, knowledge and experience for reliable and forward-looking maintenance. That’s what we call Coating Intelligence. We have an extensive track record when it comes to securing the long-term performance of Downstream Oil & Gas facilities.

We help plant owners to minimize the impact of corrosion on operations, reaching optimum plant safety and efficiency.

Our technical expertise and innovative products make us the ideal partner to achieve reliable and forward-looking maintenance solutions for all your assets.

**Advanced technologies**

We have a broad portfolio of coating solutions, optimized to protect your assets and secure their full specified lifetime. We are constantly innovating to deliver the best protection, the most efficient process and the most environmentally responsible solutions.

**Efficient processes**

Our products and services are tailored to deliver timely, safe and cost-effective solutions. The result is a streamlined application process and reduced downtime while maintaining the condition of your assets.

**Proactive partnership**

As a partner, we use our global network of maintenance specialists help you develop and execute the optimal maintenance strategy. Take advantage of our in-depth technical knowledge in a variety of fields to maximize your plant’s performance.
To discover more about maximizing plant performance, contact us or visit our website:
international-pc.com/maintenance
Propelled by curiosity