International

Exhaust gas cleaning systems solutions

Complying with the 2020 sulphur limit will require an advanced coatings strategy

AkzoNobel

The global sulphur limit comes into force in 2020

January 1st 2020 has been set as the implementation date for a significant reduction in the sulphur content of the fuel oil used by ships

The regulations

The decision to implement a global sulphur limit in 2020 was taken by the International Maritime Organization (IMO) in 2016 and requires ocean going vessels to:

- Burn fuel oil with a sulphur content of no more than 0.5% (Reg 14.1.3, MARPOL Annex VI)
- By January 1st 2020, burn fuel oil with a sulphur content of no more than 0.1% in designated Emissions Control Areas (ECAs).

Meeting the requirements

In order the meet the global sulphur limit requirements, ship owners need to either switch from HFO to low sulphur fuel oil or fit an Exhaust Gas Cleaning System (EGCS) often referred to as 'scrubber'.

For owners who have chosen the EGCS option, there are certain coating challenges associated with most types of scrubbers. The washwater used in wet scrubbers to capture sulphur oxides from the exhaust gas has higher concentrations of chemical substances with low pH levels, which can accelerate corrosion. Many standard primers do not offer appropriate chemical resistance, which may potentially lead to accelerated corrosion / breakdown.

Wet scrubber coating issues

- The internal systems of wet scrubbers (i.e. exhaust gas pipe / outlet pipes) can be subject to highly aggressive conditions which require coatings with excellent chemical resistance properties to prevent corrosion
- The area of the hull surrounding the outlet pipe area can be subject to the acidic properties of the washwater discharges (especially in the case of open-loop scrubbers) which can cause localized damage and corrosion to the hull area.

The EGCS coating solution

With over 40 years' expertise and proven performance in coatings with chemical resistance, AkzoNobel has the systems to minimize any disruption in operation arising from the operation of an Exhaust Gas Cleaning System

For areas which require additional coating protection

Outlet pipe

Proposed solution: Interline® 955

A two component, heavy duty vinyl ester coating reinforced with glass flake to increase chemical and abrasion resistance:

- Proven track-record and established in-service performance for chemical storage tanks
- Tested chemical resistance against strong acids (pH<2)
- Interline 1064 and Ceilcote 232 offers equivalent performance

Outlet pipe area (hull)

Proposed solution: Intercept 8500 LPP and Intershield 300

The area in proximity to the outlet pipe will be subjected to EGCS washwater discharges with acidic properties leading to accelerated corrosion potential.

Using high-performance biocidal antifouling coating in combination with a product that has outstanding resistance to chemical corrosion provides an extra layer of protection against corrosion caused by acidic washwater discharges.

Intershield 300

Abrasion resistant, pure epoxy coating, with >9% aluminum content:

- Proven track record: 8,700 projects over 21 years
- Excellent anticorrosive performance and extended chemical resistance including acidic conditions
- Suitable for new build as well as maintenance and repair.

Intercept 8500 LPP

A high performance, low friction linear polishing polymer (LPP) antifouling incorporating unique patented Lubyon® and silyl methacrylate technology:

- Proven track record: 250 vessels since Sept 2016
- Up to 7.5 years of dry dock specification
- Performance guarantees
- Suitable for high fouling challenge routes and low-activity vessels
- Linear polishing for predictable performance.

Other specialised tanks

The internal areas of the scrubber systems include specialist tanks requiring bespoke chemical resistant solutions. AkzoNobel has a long track record in this area and can advise specific solutions to individual environments. Please contact your local representative.

Technical assistance

AkzoNobel has worked on many scrubber retrofit and new build projects, and has the experience to offer practical advice and ensure projects run to plan with the correct results. Our global network of over 450 technical service personnel provides:

- Advice on coating selection and specification assistance
- On-site technical support
- Technical recommendations and advice
- Onboard maintenance program

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The EGCS coating offer

AkzoNobel provides a full EGCS coating package for peace of mind and predictable performance.

Based on owners' EGCS coating and underwater hull requirements we can work with you to develop an attractive proposition to fit your needs:

- **Interline 955** for outlet pipes: increased level of chemical resistance
- **Intershield 300** for protection around washwater discharge
- **Intercept 8500 LPP** for fouling control: excellent antifouling control even at low activity, with extended dry dock intervals
- Expert technical support during dry dock operations

Intercept 8500 LPP in service performance

Performance on a 37,000 DWT chemical tanker after 30 months in service

Excellent performance compared to other high performance self polishing copolymers: 51% activity > 3 knots globally trading

Intershield 300

12 month chemical immersions (pH 3 – sulphuric acid at 50°C)

Pull-off adhesion test showing good adhesion to the steel

Interline 955 / Ceilcote 232

12 month chemical immersions (10% sulphuric acid at 60°C)

Pull-off adhesion test showing good adhesion to the steel

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