

A

Abrasion Resistant	The ability to resist damage by scraping or general wearing.
Additives	A wide range of materials which are used in paint at low levels to improve the properties of the finished product.
Advanced Duplex System	A high volume solids, self polishing antifouling system incorporating unique copper acrylate SPC technology.
Aesthetics	Presentation and maintenance of a cosmetically acceptable appearance.
Alkyd	A polyester derived from the reaction of an alcohol and an acid or acid anhydride hence the term alkyd from "alcohol and acid or anhydride".
Aluminium Pigmentation	Improves the coating barrier properties by decreasing the rate of transport of water and oxygen through the coating.
Anode	An Anode is an area on the steel surface which is MOST at risk to corroding.
Antifouling Coating	Antifouling coating prevents the build-up of biofouling.
Average Hull Roughness	The 'mean' of all the vessel's hull roughness readings and the measure against which ship's performance is correlated.

B

Bacterial Corrosion	Also referred to as micro-biological corrosion or anaerobic (without oxygen) corrosion, this type of corrosion may occur if local operating conditions support bacterial activity.
Barnacles	Barnacles are the most commonly encountered fouling animal. Barnacles live within hard calcareous shells which can adhere very tightly and can be difficult to remove. On ships, removal by underwater scrubbing or mechanical scraping typically results in a barnacle residue being left behind. This can promote further colonisation, increasing the fouling problem.
Binder	The part of the coating which forms a continuous adherent film when applied to a substrate.
Biocide	A chemical substance capable of killing living organisms, usually in a selective way. Biocides are commonly used in medicine, agriculture, forestry, and in industry where they prevent the fouling of ships hulls, water and oil pipelines. Some substances used as biocides are also employed as antifouling agents.
Biocide free	Free of any chemical agents that could potentially kill living organisms.
Bio fouling	Growth of living organisms upon substrates such as ships hulls and oil rig legs.
Brand	A name, term or symbol to uniquely identify a producer's goods or services differentiating them from competitors.

Business Principles	Core values of business conduct that apply equally to all of our business transactions and to the behaviour of individual employees around the world. Akzo Nobel's core values are entrepreneurial spirit, personal integrity and social responsibility.
Business Principles Specifications	The application of Akzo Nobel's Business Principles to a number of important basic global issues, such as child labour, the rights of labour to organise, our presence in high-risk countries and fair competition. The specifications will be extended and amended from time to time.

C

Carbon Dioxide (CO ₂)	Carbon dioxide is an atmospheric gas which results from the combustion of organic matter if sufficient amounts of oxygen are present. Carbon dioxide is present in the Earth's atmosphere at a low concentration and acts as a greenhouse gas. Akzo Nobel reports about its direct CO ₂ emissions as a key performance indicator: the sum of fuel combustion and process related direct CO ₂ emissions from stationary sources on Akzo Nobel premises in the reporting year.
Cathode	A Cathode is an area on the steel surface which is LEAST at risk to corroding.
Cathodic Disbondment	The loss of adhesion between a coating and the substrate caused by the products of a corrosion reaction.
Chemical adhesion	Chemical bond formed between two materials.
Coatings Care®	A voluntary environmental, health and safety management program for coatings manufacturers around the world.
Coefficient of Friction	A dimensionless scalar value which describes the ratio of the force of friction between two surfaces and the force pressing them together.
Contaminates	Waste materials that pollute substrates and coatings.
Controlled Depletion Polymer (CDP)	Controlled depletion polymer antifoulings rely on a physical dissolution of the paint film to provide the polishing action. CDP antifoulings are also referred to as ablative or eroding and rely on the presence of rosin in the coating to provide the physical dissolution at the surface.
Copper Acrylate	Copper acrylate is a component of self polishing copolymer (SPC) paint which hydrolyses on immersion in water facilitating controlled release of biocides which are added to the paint.
Corrosion	Breakdown of substrate material due to chemical reaction between water and oxygen. Usually resulting in Rust.
Common Structural Rules (CSR)	Common Structural Rules for Tankers and Bulk Carriers are based on sound technical grounds, and achieve the goals of more robust and safer ships.
Corporate Social Responsibility (CSR)	Corporate Social Responsibility is a business approach to create long term stakeholder value by embracing opportunities and managing risks deriving from economic, environmental and social developments.

D

Dataplan	International Paints' performance monitoring system which records the application and performance of coating systems on over 30,000 vessels currently in service.
Deadweight Tonnage (DWT)	The weight (in tonnes) of cargo, stores, fuel, passengers and crew on a ship when loaded to its maximum summer load line . Also the difference between a ships loaded displacement and lightweight (light displacement).
DFT	Dry film thickness. The measured thickness of the final dried film applied to the substrate
DFT Ladder	A test comparing various coatings' long term anticorrosive performance in a relatively short period of time. It involves the application of a single coat to suitably prepared steel (Sa2.5) at a range of DFT's. The panels are then immersed in natural seawater and the degree of rusting and blistering is monitored with time.
Dow Jones Sustainability Indexes (DJSI)	The Dow Jones Sustainability Indexes, launched in 1999, is a global index for tracking the financial performance of the leading (best 10%) sustainability-driven companies worldwide. Akzo Nobel is selected as a member of the DJSI since September 2005.
Draught	The depth of water a ship floats in, the distance from the bottom of the ship to the waterline .
Dry Hold	Used for the transport of dry cargo.

E

Electrolyte	Substance (Liquid) that can conduct electricity.
Epoxy	A thermosetting epoxide polymer that cures when mixed with a catalyzing agent or hardener.
Extenders	Naturally occurring or synthetic materials which have little hiding power or effect on colour. Extenders are used to impart specific properties to the paint (eg gloss control, abrasion resistance or reinforcement). Typical extenders are barytes, talc, mica and dolomite.

F

Fabrication	The building of machines and structures from various raw materials.
FDA	Food and Drug Administration.
Film Formers	Either macro-molecular products (eg chlorinated rubber) or low molecular mass products which react to form macromolecular structures (eg epoxy/amine). The molecular mass has a critical bearing on the final paint as it influences mechanical and application properties inversely – the right blend is crucial for optimum overall performance. Most film formers are known as resins.

Flash Point	The lowest temperature at which a flammable liquid can form an ignitable mixture in air. Flash point is measured using internationally recognised standards.
Fluoropolymer	A fluorocarbon based polymer with multiple strong carbon–fluorine bonds. It is characterized by a high resistance to solvents, acids, and bases
Formulation	Process where Resins, Pigments and Binders are combined to form a unique coating.
Fouling	The build up of living organisms.
Foul Release	Unlike traditional antifouling systems that release copper or other metal toxicants that kill fouling organisms, silicone-based foul release systems function by providing a low energy surface to which fouling organisms do not tenaciously adhere. Foul release coating systems are more environmentally friendly than traditional antifouling coating systems.
Freight	Refers to goods being transported or the price of transport.
FROSIO	Norwegian Professional council for education and certification of inspectors for surface treatment.
FTSE4GOOD Index	This European equivalent of the Dow Jones Sustainability Index in the United States is used extensively by investors worldwide to measure the performance of companies that meet globally recognised CSR standards. The FTSE4Good selection criteria cover areas of environmental sustainability, developing positive relationships with stakeholders and upholding and supporting universal human rights. Akzo Nobel is selected for the FTSE4GOOD index in March 2006.

G

Gloss retention	Ability of a coating to retain its level of gloss.
Gooseneck Barnacles	These animals are especially adapted for life attached to moving objects. They are unusual in that they are not a coastal or shoreline fouling problem but can settle on moving ships' hulls in the open ocean.
Gross Tonnage (GT)	A function of the volume of all ships enclosed spaced (from keel to funnel) measured to the outside of the hull framing.

H

Holistic coating solutions	Coating solutions that cover all needs.
Health, Safety and Environment (HSE)	Policies, guidelines and practices followed by Akzo Nobel that focus on (1) preventing harm to and promoting the health of its employees and other stakeholders; (2) preventing any injuries at work both for our own employees and our contractors; and (3) protecting the environment by preventing or minimising the environmental impact of our activities and products through appropriate design, manufacturing, distribution, use and disposal practices.

WM/11951R/DS

Marine Coatings

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Hydroblasting A technique for cleaning surfaces, which relies entirely on the energy of water striking a surface to achieve its cleaning effect. Abrasives are NOT used in hydroblasting systems. Consequently the problems caused by dust pollution and by the disposal of spent abrasives are eliminated.

Hydroids Plant like in appearance, hydroids live in colonies and are often found on the flat bottom of vessels where they are often mistaken for algae.

I

IACS International Association of Classification Societies Ltd. Dedicated to safe ships and clean seas, IACS makes a unique contribution to maritime safety and regulation through technical support, compliance verification and research and development.

IMO International Maritime Organisation, a permanent international body dedicated to promote maritime safety.

IMO PSPC International Maritime Organisation - 'Performance Standard for Protective Coatings.

Interspec International Paints' coatings proprietary IT quotation and specification system.

Intumescent Coating that swells when exposed to heat.

J

K

Kinetic Coefficient Kinetic (or dynamic) friction occurs when two objects are moving relative to each other and rub together (like a sled on the ground). It is usually less than the coefficient of static friction for the same materials.

L

Leached Layer A biocide depleted "spent" layer at the surface of the coating. In SPC antifoulings the leached layer is always thin, <15µm (0.6 mils), providing a smooth surface. Conversely, CDP leached layers can become very thick, >75µm (3 mils), resulting in increased surface roughness plus removal and overcoating difficulties.

Low Solar Absorption Can help minimise air conditioning unit workload and operational cost, provides a more suitable working environment for the crew and sensitive electronic equipment and can also reduce deck head temperatures.

M

M&R	Maintenance and repair.
Macrofouling	Includes plant (weed) and animal fouling.
MARINTEK	A Norwegian Marine Technology Research Institute - does research, development and technical consulting in the maritime sector for industry and the public sector. The Institute develops and verifies technological solutions for the shipping and maritime equipment industries and for offshore petroleum production.
MARPOL	International Convention for the Prevention of Pollution from Ships.
Mechanical Adhesion	How the coating bonds with the substrate by “locking” in to voids in the surface.
MED	Marine Equipment Directive
Metallic Pathway	Steel surface which connects anode to a cathode.
Microfouling	Includes unicellular algae and bacteria (also referred to as 'slime').
Modified Epoxy	Epoxy that has had hydrocarbon resin added to modify performance.
Molluscs	These are animals with hard, paired shells such as mussels and oysters. Adhesion to submerged structures is relatively weak and this tends to limit settlement to stationary structures rather than on active vessels e.g. oil platforms.
MSDS	Material Safety Data Sheet

N

NACE	National Association of Corrosion Engineers.
NSF	National Sanitisation Foundation, certifies products for use in contact with drinking water.

O

OBM	On Board Maintenance
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P

Pigment	Responsible for colour, hiding power and, in special cases, for specific properties (eg passivation or fouling control). Pigments are finely ground, crystalline solids dispersed in the paint. Metals, inorganic, organic and organometallic compounds are all used as pigments.
Pitting Corrosion	The main characteristic of this type of corrosive attack is that it is extremely localized and steel penetration can be deep in relation to the area under attack. This is one of the most dangerous forms of

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	corrosion and can be most intense on millscaled or coated steel.
Planned maintenance	Pre determined downtime of a facility or asset for maintenance and repair.
Plant (Weed) Fouling	The most common plant fouling on ships is the brown algae <i>Ectocarpus spp.</i> and the green algae <i>Enteromorpha spp.</i> , often referred to as sea grass due to its similar appearance and colour. Plant fouling usually occurs where there is available sunlight, i.e. around the water line and a few metres below. It is not usually found on the flat bottom of vessels.
Plasticiser	Organic liquids of oily consistency and low volatility. They are used to modify the film characteristics of the film former/resin being used, for example to improve flow and increase flexibility.
Polyurethane	Versatile polymer technology that allows for low temperature fast drying and simple application.
Primer	A coating applied to a surface to prepare it for paint or another coating or adhesive.
Product Stewardship	The responsible and ethical management of health, safety and environmental aspects of a product throughout its total lifecycle. This may involve redesigning products to use fewer hazardous materials or make them more durable, reusable or recyclable.
Pure Epoxy	Containing epoxy and curing agent only.

Q

R

REACH	The system for Registration, Evaluation and Assessment of Chemicals being proposed under the EU Chemicals Policy.
Resins	That part of a coating which forms a continuous adherent film when applied to a substrate.
Responsible Care [®]	The chemical industry's global voluntary initiative under which companies, through their national associations, work together to continuously improve their health, safety and environmental performance and to communicate with stakeholders about their products and processes.
Revenue loss	Potential loss of income.
River/Sea Transport	Transport of goods on board a river / sea vessel (seagoing vessel designed for use on inland waterways), carried out entirely or partly on the inland waterways network.

S

Self Polishing Copolymer	The paint polymer or binder system is made soluble in seawater by hydrolysis. This is a controlled chemical reaction and only occurs at the surface of the coating. SPC technology combines controlled polishing rate and optimum biocide release with inherent self
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	smoothing for hull roughness control and maximum fuel efficiency.
Shop (pre-construction) Primer	Shopprimers are thin coatings which are applied to steel plates and profiles after blast cleaning to provide temporary corrosion protection during transport, storage and production.
SINTEF	SINTEF Marine consists of MARINTEK, SINTEF Fisheries and Aquaculture and the Department of Marine Environmental Technology. SINTEF Marine focuses on the field of knowledge management for the future exploitation of the oceans.
Slime Fouling	Slime on submerged surfaces is attributable to the accumulation of unicellular algae (diatoms). Difficult to control, slime has a very low surface profile and can remain adherent on ships' hulls at speeds in excess of 30 knots.
Slurryblasting	A technique for cleaning surfaces with a mixture of fresh water and abrasive where the elimination, or control of abrasive dust is required.
SOLAS	International Convention for the Safety of Life at Sea. It is generally regarded as the most important of all international treaties concerning the safety of merchant ships. The first version was adopted in 1914, in response to the Titanic disaster.
Solvent	Most commonly a carbon based liquid that dissolves liquid, solid or semi solid resin component of coatings.
Specification	The coatings systems required to protect the client's assets.
Static Coefficient	Static friction is friction between two solid objects that are not moving relative to each other. For example, static friction can prevent an object from sliding down a sloped surface. The coefficient of static friction is usually higher than the coefficient of kinetic friction.
Substrate	Steel, Metal or other material which the coating is protecting.
Surface Tolerant	Coating able to be applied over many surfaces / coatings.

I

Tanker Hold	Used for the transport of cargo in tankers.
Test X9	Accurately simulates in service damage in cargo holds and highlights very clear differences between so called 'abrasion resistant' coating systems in terms of long term and corrosion protection.
Thinner	Usually a solvent used to thin coatings to aid application.
Tube Worms	These organisms live in easily recognisable calcareous tubes which protect their soft bodies. They tend to settle on stationary structures or on vessels which spend a comparatively longer time in port.
Twenty-Foot Equivalent Units (TEUs)	Unit of measurement for registering containers according to their dimensions and for the description of the capacity of container vessels and terminals. One ISO 20-foot container (20 feet long and 8 feet wide) corresponds to 1 TEU.
Two Pack	Coatings requiring two components to chemically react with each other to cure.

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U

V

Volume Solids	Percentage of the wet film, which remains as the dry film, and is obtained from a given wet film thickness under specified application method and conditions.
Volatile Organic Compound (VOC)	VOC's are organic (contain carbon) compounds that have a high enough vapour pressure under normal conditions to significantly vapourise and enter the atmosphere.
Volatile Organic Compounds (VOC) Content	The weight of volatile organic compounds which participate in atmospheric photochemical reactions for litre of paint.

W

WFT	Wet Film Thickness. The initial thickness of the wet coating applied to the substrate.
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X

Y

Z