

ABCITE® THERMOPLASTIC POWDER COATINGS

ULTRA
TOUGH

For enhanced long term substrate protection



SUPER **DURABLE**

Kulorthene Series ABCITE® thermoplastic powder coatings have been developed specifically for enhanced long term corrosion protection, high impact strength and excellent exterior weathering.

BENEFITS INCLUDE:

Exceptional resistance against salt spray, humidity, most common chemicals, acids, and alkalis. Abcite® coatings have high elongation properties, excellent mechanical resistance, are solvent free, have excellent substrate adhesion without the need for primers, superior chip resistance, and will provide superior substrate protection even to sub zero temperatures.



Abcite® coating maintains its integrity with no coating film disruption despite a high tightening torque.

(Washers are required)



Abcite® is extremely flexible even down to -78°C. Traditional powder coatings even when fully cured do not have comparable flexibility.



SLIP RESISTANCE WITH USER FRIENDLY FEEL

Abcite® high build, slip resistant, coatings have excellent thermal insulation properties making them pleasant to the touch and providing a “cushion feel”.

Kulorthene Series - Abcite®

- Does not suffer from premature failure through embrittlement
- Excellent coverage of edges and welds
- Tactile grip and warm feel
- Very good sound and electrical insulation properties
- Low flammability and low smoke and toxic fume emissions
- Environmentally friendly - 100% recyclable, no VOC's, plasticisers, TGIC, heavy metals or halogens
- Coating is easy to repair in-situ
- Long term corrosion protection to metal items
- Excellent adhesion without the need for primers
- Excellent resistance to exterior weathering, sun
- Excellent chemical resistance, including acids, alkalis and road salts
- Potable water certifications - suitable for contact with drinking water and food
- Vandal and graffiti resistance
- Excellent impact and abrasion resistance - will not chip or crack even at very low temperatures

Independently Tested to ISO Standards

Abcite® X60 has been independently tested in Germany to ISO 12944-6. “Corrosion protection of steel structures by protective paint systems”. The coating meets the highest specifications of C5-M and Im3

Atmospheric – corrosivity category and examples of typical environments.

CORROSIVE CATEGORY	EXAMPLES OF EXTERIOR ENVIRONMENTS	EXAMPLES OF INTERIOR ENVIRONMENTS
C5-M . Very High (Marine)	Coastal and offshore areas with high salinity, industrial areas with high humidity and aggressive environments.	Buildings or areas with almost permanent condensation and with high pollution. Chemical plants, breweries, laundries, swimming pools, coastal ship and boat yards.

Category for soil and water.

CATEGORY	EXAMPLES OF ENVIRONMENTS	EXAMPLES OF STRUCTURES & USES
Im3	Fresh water, sea or brackish water, soil.	River installations, hydro plants, harbour areas, sluice gates, off shore structures, buried tanks, steel pipes, and steel piles.

What's the difference between Kulorthene Series Abcite® and traditional (thermoset) powder coatings

Abcite® is a thermoplastic powder coating which melts and flows to form a very hard, flexible and impervious coating.

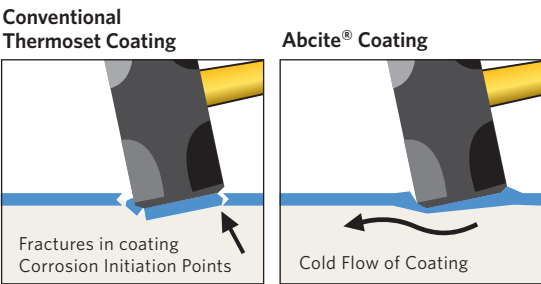
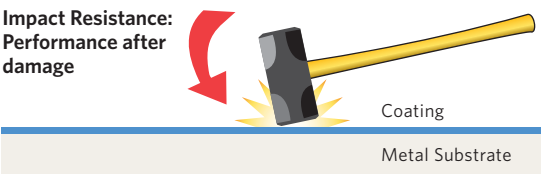
- Traditional (thermoset) powders must first melt and then chemically cross-link to develop their physical properties and adhesion.
- The curing/cross-linking schedule is therefore critical for traditional thermoset powder coatings to attain their full properties and appearance. This can require long oven cycle times.
- Abcite® only has to melt onto the surface to provide adhesion, and when the coating is cooled full appearance and physical properties are ensured.

Abcite® can be applied from 200 to 3,000 microns.

- Traditional powder coatings are applied at 50 to 100 microns.

Abcite® coatings can be repaired in-situ using the same polymer system.

- Traditional powder coatings can only be repaired in-situ with a paint overcoat which may not have the same physical or weathering properties as offered by the original powder.



Abcite® coated pipe is scuffed but the film is not broken or chipped.

CASE HISTORIES

FIRE ESCAPE



Fire escape concealed by marine and weatherproof Abcite® coated perforated steel sheet.

Sharp edges well covered. Abcite® being flexible can bend through 90 degrees without signs of cracking.

MARINE



Dredge Pipe and accessories coated in Abcite®.

Major corrosion and wear problems successfully overcome on more than 12 dredge boats after coating with Abcite®.

RECREATION CENTRE



Maximum protection against corrosion for railings in a Belgian sub-tropical recreational centre

Abcite® is classified as non hazardous and is a sound choice for in-door swimming pools.

BATTERY TRAY



A totally effective anti-corrosion protective coating for battery trays and containers.

Abcite® resists acids even at elevated temperatures.

BOAT MOORING



High Build Long Term Corrosion Protection in a tough Marine Environment.

Abcite® offers colour choice and superior corrosion performance on coated steel components. A realistic commercial alternative to stainless steel.

CHILDRENS PLAYGROUND



Making playgrounds a safer place for children

Abcite® will not chip or flake-off under long exposure to UV and thermal cycles.

BIKE RACK



Thermoplastic coating bonds to metal and protects bike rack against rust and rough treatment

Abcite® can be applied uniformly to different thicknesses and weights of metal.

SWIMMING POOL



High Humidity, Pool Chemicals, and exposure to human traffic are a gold mine for corrosion.

Abcite® has excellent abrasion, impact, chemical, and slip resistance. It is also physiologically and toxicologically safe.

PIPES & VALVES



Save ongoing maintenance costs.

Applied externally Abcite® gives extra long term corrosion protection. Use above ground or underground. Internationally approved & certified.



ABCITE® FOR ENHANCED LONG TERM SUBSTRATE PROTECTION

ABCITE® 500 ES

Product Description
Abcite® 500 ES Abcite® 500ES is suitable for a wide range of general purpose uses. It is a tough chip-resistant high build thermoplastic powder coating that has very good edge coverage and substrate adhesion. Abcite® 500ES provides excellent corrosion and UV protection without the need for a primer. It is designed for various application techniques eg; electrostatic spraying, fluidised bed, and flame spraying. Abcite® 500ES is based on a modified polyolefin ethylene copolymer .

Chemical Resistance
Abcite® 500 ES has an excellent resistance to chemical attacks by both acids and alkalis, however application-specific chemical resistance testing is recommended.

Typical Applications
Abcite® 500 ES is suitable for a wide range of end uses. Eg; automotive components, springs, outdoor air con, fan guards, cable support systems, outdoor street furniture, playground equipment, light poles, street signs, bus shelters, fencing, public and stadium seating, farm and agricultural equipment, mining and infrastructure, etc.

ABCITE® X60

POTABLE
WATER
APPROVED

Product Description
Abcite® X60 A step up in chip and abrasion resistance. Abcite® X60 is based on DuPont Surlyn resin the same polymer used for the tough outer skin of golf balls. Abcite® X60 is a high build thermoplastic powder coating with superior edge coverage, substrate adhesion, and excellent corrosion and UV protection without the use of a primer. It is designed for various application techniques eg; electrostatic spraying, fluidised bed, and flame spraying.

Chemical Resistance
Abcite® X60 has excellent resistance to chemical attacks by both acids and alkalis however application-specific chemical resistance testing is recommended. It is also highly resistant to permeation by liquids. It also has good anti graffiti properties.

Typical Applications
Abcite® X60 Abcite® X60 is particularly suitable for outdoor light poles, sign posts, street and garden furniture, bike racks, marine fittings and fixtures, balustrades, railings and trellis, fencing panels, motorway guard rails, battery boxes, water pipes, valves and fittings, farm and agricultural equipment, mining and infrastructure in fact anywhere that increased hardness and abrasion resistance is required.

ABCITE® X70

Product Description
Abcite® X70 Undoubtedly “best in class” and the toughest most chip and abrasion resistant product in the Abcite® range. Abcite® X70 is based on DuPont Surlyn resin the same polymer used for the tough outer skin of golf balls. Abcite® X70 is a high build thermoplastic powder coating with good adhesion, excellent edge coverage, corrosion and UV protection without the use of a primer. It is designed for various application techniques eg; electrostatic spraying, fluidised bed, and flame spraying.

Chemical Resistance
Abcite® X70 has excellent resistance to chemical attacks by both acids and alkalis however application-specific chemical resistance testing is recommended. It is also highly resistant to permeation by liquids. It also has very good anti-graffiti properties.

Typical Applications
Abcite® X70 is the toughest and most abrasion resistant of all the Abcite® product range. It can be used for a wide variety of purposes but it's particularly suitable where superior long term coating performance is required in conditions or environments that are harsh or aggressive. eg in marine situations, underground mining, fertiliser works, windblown desert conditions, chemical works, agricultural and farming, etc.

ABCITE® SPECIALITIES

(NB SOME SPECIALTY PRODUCTS ARE MADE TO ORDER ONLY)

Abcite® 500ES as a “primer”.
Because of its unique polymer structure **Abcite® 500 ES** is also recommended as a primer for use under traditional Thermosetting powder coatings. The duplex system results in high film builds with the Abcite® 500 ES providing outstanding impact resistance and substrate protection while the top coat of thermosetting powder allows the applicator access to an extensive ex stock colour range.

Potable Water
Abcite® X60 has been approved for the use in potable water situations. It is widely used in Europe for this purpose. Abcite® X60 has been tested and approved to AS/NZS 4020:2005 – Testing of Products for use in contact with drinking water and AS/NNZ 4158-2003 Cathodic disbondment

Antimicrobial
Abcite® 5500 ES AM is a specialist coating that has been modified to exhibit antimicrobial properties. This coating has been tested to the globally recognised Japanese standard JIS Z 2801.

Stainless Steel alternative.
In marine or harsh environments, many common grades of stainless steel often exhibit a brown “tea staining” which detracts from the appearance of the article making it look “rusty” and unattractive. By replacing the stainless steel with mild steel and using an Abcite® “stainless steel look” thermoplastic powder coating not only will this save cost, and provide all the long term corrosion protection necessary, but you can be sure the coated articles will remain looking good for a long long time.

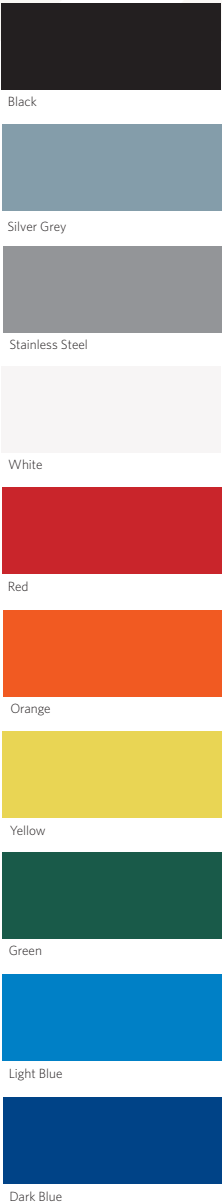
Glass Coating
With its high shatter proof resistance and excellent adhesion **Abcite® 585** is specifically formulated for coating glass. Being a clear / transparent coating it is excellent for coating lab equipment and chemical glass jars also allowing for glass lightweighting where required. Should the glass container break the Abcite® 585 coating will ensure the contents of the container remain entrapped thus eliminating spillage. Abcite® 585 can also be used on glass light fittings to prevent glass contamination in food production areas.

High Temperature Resistance
Abcite® 3150 is purpose designed for 85C continuous service temperature or 95C peak service temperature for 60 minutes. The main uses are for dish washer baskets and water boilers.

SPECIFICATIONS

The Kulorthene series of Abcite® thermoplastic powder coating has been developed specifically for corrosion protection, high impact strength and good weathering capability.

KULORTHENE THERMOPLASTIC POWDER COATINGS PRODUCT GUIDE							
APPLICATION			STANDARD	ABCITE® 500 ES ABCITE® 500	ABCITE® X60 ABCITE® X1060	ABCITE® X70 ABCITE® X1070	SPECIALITIES
	Substrate			metal	metal	metal	Contact your Dulux Powder & Industrial Coatings representative for speciality products such as, the antimicrobial Abcite® 500 ES AM, higher temperature resistant Abcite® 3150, glass coating Abcite® 585, etc.
	Primer			not required	not required	not required	
	Application Process			Fluidised Bed or ES spray	Fluidised Bed or ES spray	Fluidised Bed or ES spray	
	Positive List for Food Contact (clear & white)			FDA	EU	EU	
	Potable Water Contact Certification (RAL5017 blue)		AS/NZS 4020:2005 DVGW - KTW Germany BELGAQUA Belgium	-	PASS	-	
	Cathodic Disbondment (RAL5017 blue)		AS/NZS 4158:2003	-	PASS	-	
	Main Market Segments			Fencing, Outdoor street furniture, Agricultural equipment, General industrial	Similar to Abcite® 500 + water pipes & valves, marine fittings, mining equipment, etc any- where superior chemical resistance is required	Similar to Abcite® 60 + where extra abrasion resistance is required	
	PERFORMANCE	Max Service Temp continuous			80°C	75°C	
Max Service Temp peak (1 hour)			90°C	85°C	80°C		
Corrosion Resistance - salt spray (SA2.5 blasted-scribed panels)		ASTM B117/ISO9227	< 1mm (2000 hr)	<1mm (3500 hr)	<1mm (2000 hr)		
UV resistance (2000 hr UVB 50°C + condensation 60°C 4 hr cycles)		ASTM G154/ISO4892-3	excellent	excellent	excellent		
Chemical Resistance R = resistant L = limited U = not resistant		acids	ISO2812 ISO4628	R (20°C/60°C)	R (20°C/60°C)	R (20°C/60°C)	
		alkalis		R (20°C/60°C)	R (20°C/60°C)	L (20°C/60°C)	
		gas		R (20°C) U (60°C)	R (20°C) U (60°C)	R (20°C) U (60°C)	
		solvent		R (20°C)	R (20°C)	L (20°C)	
Impact Strength (kJ/m2)		23°C	ASTM D1822/ISO6272	277	343	479	
		-20°C		330	390	383	
		-40°C		345	254	378	
Impact Resistance		ASTM D1822/ISO6272	excellent	excellent	best in class		
Edge covering			excellent	excellent	excellent		
Soft Touch			excellent	excellent	best in class		
Taber Abrasion Resistance (wt. Loss/1000 cycles CS10 wheel on coated plate)		ASTM D4060/ISO 9352	17.5mg	12.5mg	15.7mg		
Flammability (mm/min)		ASTMD635	-	14.6	13.6		
PROPERTIES	Fire Resistance		UL 94	V0 (coated sample)	V0 (coated sample)	V0 (coated sample)	
	Melt Flow Index (190°C/2.16kg - g/)		ASTM D1238/ISO1133	32	25	32	
	Melting Point (°C)		ASTM D3418/ISO 3146C	95°C	90°C	85°C	
	Vicat Softening Point** (°C)		ASTM D1525/ISO306	77°C	63°C	52°C	
	Substrate Adhesion (dolly peeling test N/cm)		ASTM D4541/ISO4624	34.2	42.7	cohesive failure	
	Hardness - Shore D		ASTM D2240/ISO868	50	60	65	
	Brittle Point (°C)		ASTM D746/ISO974	-60°C	< -100°C	< -100°C	
	Thermal Conductivity** (W/mK)		ASTME1530	-	0.25	0.28	
	Tensile Strength** (MPa)		ASTMD638/ISO527	16	23	27	
	Elongation at Break ** %		ASTM D638/ISO527	580%	460%	290%	
	Specific Gravity (g/cm³)		ASTM D792/ISO1183	0.93	0.94	0.97	
	Volumetric Resistivity (Ω·cm)		ASTM D527/IEC 93)	2.4 10 ¹⁷	2.0 10 ¹⁸	2.0 10 ¹⁷	
	Dielectric Breakdown (kV)		ASTM D149-97/IEC243-1	62	62	62	
	Dielectric Strength** (kV/mm)		ASTM D149	> 50	38	38	
** measured on main raw material							



Colours shown are as close as modern printing processes allow.

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Kulorthene

Online

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www.kulorthene.com

