

Hydrophobic Araldite®

Inspired by nature



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Embedded Pole OP1 - Outdoor
by courtesy of ABB Germany



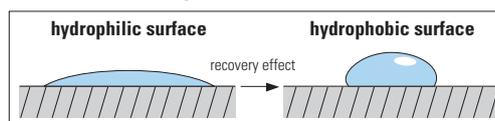
Enhanced properties for epoxies

Cycloaliphatic epoxies have been successfully applied in electrical outdoor insulation for over 35 years. The intrinsic advantages of epoxy systems over porcelain range from easier handling, lower transport costs, extended design possibilities, and higher power arc resistance to reduced maintenance. All of these result in reduced life costs. This performance profile has secured epoxy resin systems a leading place in the medium-voltage insulation market.

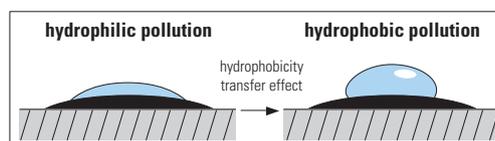
The new hydrophobic **Araldite®** insulating outdoor systems extend this attractive profile. They provide advanced properties in terms of intrinsic hydrophobicity, hydrophobicity transfer and recovery at a level similar to the known performance of silicone, but at a cost that is in line with traditional epoxy systems. These new characteristics result in a reduction of leakage currents, thus making hydrophobic **Araldite®** the right and cost-effective choice for medium- to high-voltage systems.



Recovery and Hydrophobicity Transfer Effect



The hydrophobicity recovery effect is the ability of surfaces to recover their initial hydrophobic properties after losses resulting, e.g., from electrical aging.



The hydrophobicity transfer effect is the ability of surfaces to turn hydrophilic pollution into hydrophobic layers.

Proven in extreme situations

Manufacturing insulating parts with the new hydrophobic **Araldite®** epoxy systems ensures better reliability of power supply where environmental extremes subject materials to great stress. Tropical climates, shore or mining areas are typical environments in which hydrophobic **Araldite®** products demonstrate their profile to their best advantage.

Hydrophobic ingredients migrate out of the new **Araldite®** epoxy material and penetrate through layers of pollution to keep the surface of the insulating part hydrophobic over time.



One-step construction and insulation

These strong hydrophobicity characteristics can now be combined with the traditional strengths of epoxy systems. As a one-step construction and insulation system, epoxy resins are homogeneous in various applications and present no inherent interface problems.

Comparison of medium-voltage outdoor insulators

	Porcelain	CEP	EPDM (composite insulator)	Silicone (composite insulator)	HCEP
Design versatility	○ ○	● ●	○	○	● ●
Weight	○ ○	●	●	●	●
Manufacture process (complexity, duration)	○ ○ ○	● ●	○ ○	○ ○	● ●
In-house production	○ ○ ○	● ●	○ ○	○ ○	● ●
Handling	○ ○	●	●	●	●
Intrinsic hydrophobicity	○ ○ ○	●	●	● ● ●	● ●
Hydrophobicity recovery	○ ○ ○	○ ○	○ ○	● ● ●	● ●
Hydrophobicity transfer	○ ○ ○	○ ○	○ ○	● ● ●	● ●
Thermal shock resistance	○ ○	●	● ●	● ●	● ●
Vandalism resistance	○ ○	●	●	●	●
Bird attack resistance	●	●	○ ○	○ ○	●
Number of interfaces	●	●	○	○	●
Flash-over probability	○ ○	●	●	● ●	● ●
Flash-over resistance	●	●	●	●	●
Corona resistance	● ●	○	○ ○	○	○
Pitting erosion	● ●	○	○	●	●
Tracking and erosion resistance	● ● ●	● ●	● ●	● ●	● ● ●
Maintenance	○ ○	●	●	● ●	● ●
Insulator cost	●	●	○ ○	○ ○ ○	●
Overall insulator life cost	○	●	○	○	●

● ● ● excellent ● ● very good ● good ○ ○ ○ very critical ○ ○ critical ○ medium

CEP: Cycloaliphatic Epoxy

HCEP: Hydrophobic Cycloaliphatic Epoxy



Contact us directly – worldwide

Americas

Huntsman Advanced Materials Americas Inc.
Americas Customer Service Center
10003 Woodloch Forest Drive
The Woodlands
Texas 77380
USA
Tel.: +1 281 719 6000
Fax: +1 281 719 6416

Asia

Huntsman Advanced Materials (Guangdong) Company Limited
Asia Pacific Customer Service Center
Flying Geese Mountain Industrial Park
Shilou Town, Panyu City
Guangdong 511447
P.R. China
Tel.: +86 20 848 65123
Fax: +86 20 848 65122

Europe

Huntsman Advanced Materials (Switzerland) GmbH
EAME Customer Service Center
Klybeckstrasse 200
4057 Basel
Switzerland
Tel.: +41 61 966 3333
Fax: +41 61 966 3334

E-mail

power@huntsman.com

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