

REACH – The European regulation on chemicals

REACH is the acronym used to designate the European Community's regulation on chemicals presently in effect: Regulation (EC) 1907/2006. REACH stands for Registration, Evaluation, Authorisation and Restriction of Chemicals.

REACH was adopted to improve the protection of human health and the environment from the risks posed by chemicals. In principle, REACH applies to all chemical substances as such, as ingredients of a mixture as well as in products. Therefore, the regulation has an impact on most companies across the EU.

If the risks cannot be managed, authorities can restrict the use of substances in different ways. They can ban hazardous substances, decide to restrict specific uses or make their use subject to prior authorisation. In the long run, the most hazardous substances should be substituted with less dangerous ones.

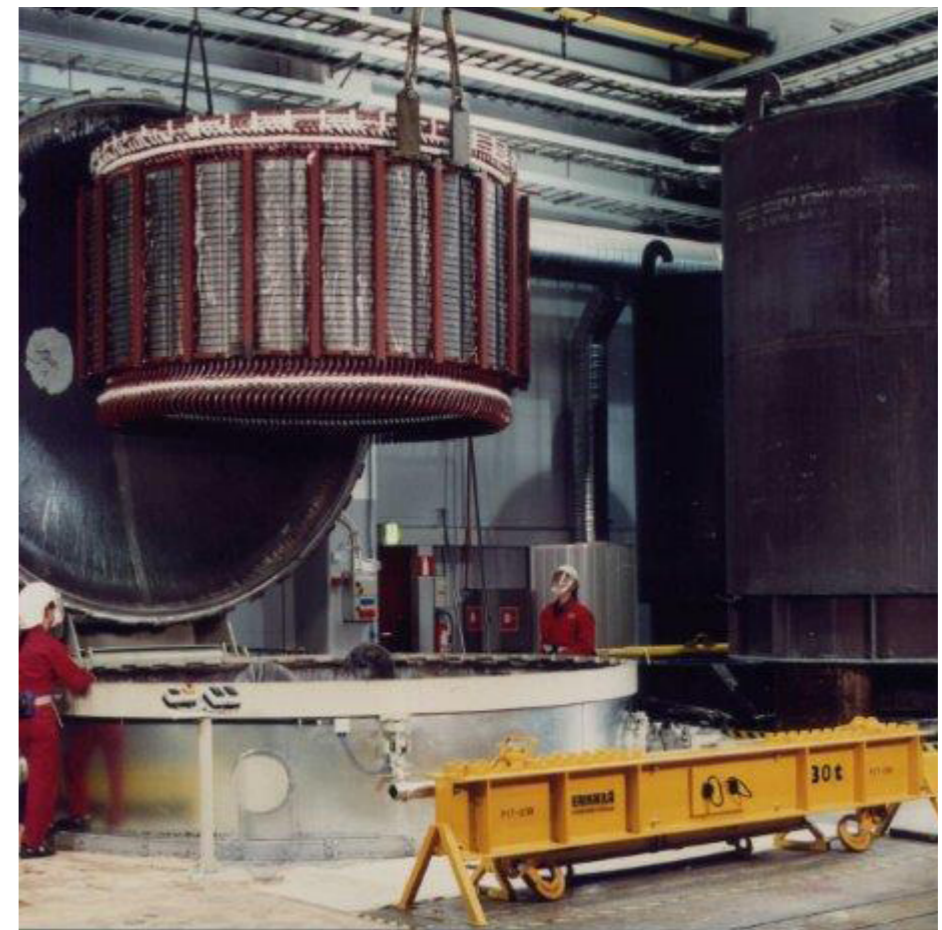
Von Roll is well aware of the responsibility and obligation to achieve REACH compliance. For example, after defining the anhydrides MHHPA and HHPA as Substances of Very High Concern (SVHC) and considering them for authorisation, Von Roll developed Damisol® 3418 API and Damisol® 3420, new products that use an alternative anhydride (3418 API) and an anhydride-free free Epoxy resin system (3420), respectively.

Von Roll will carefully monitor ongoing changes to REACH to achieve compliant solutions in due time.

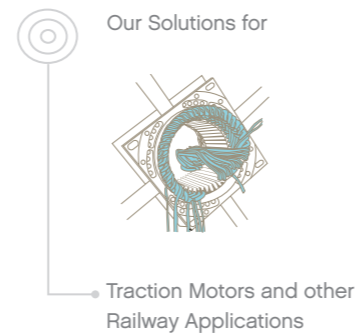
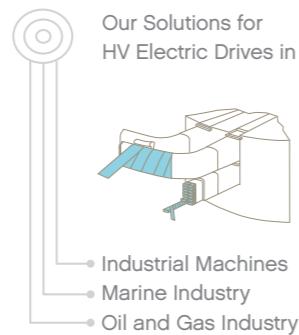
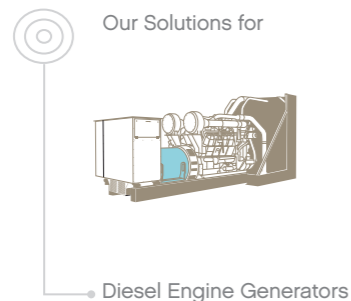
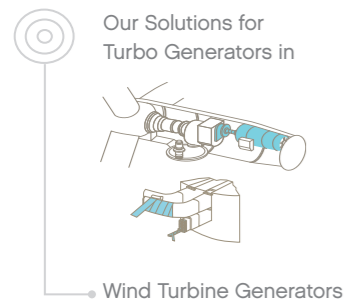


We Enable Energy

REACH-compliant solutions



Impregnation resins for high-voltage rotating machines





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	Unsaturated polyesterimide (UPI)	Unsaturated polyesterimide (UPI)	Catalysed epoxy resin with vinyl toluene	Catalysed epoxy VOC-free 	1K catalysed epoxy anhydride VOC-free 
Von Roll reference	Damisol® 3309	Damisol® 3340	Permafil® 74050	Damisol® 3420	Damisol® 3418 API
Thermal class / max. voltage	H / 15 kV	H / 6,6 kV	H / 13.8 kV	F / 15 kV	H / 15 kV (more if resin preheated)
Storage	23°C or lower	23°C or lower	23°C or lower	23°C or lower	23°C or lower
Viscosity @ 25°	~170mPa.s	~500mPa.s	~500mPa.s	~1200mPa.s	~400mPa.s
Resin impregnation T°	~23°C	~23°C	~23°C	25°C up to 40°C	~23°C
Curing time and T° recommended	short – 150°C	short – 150°C	medium – 160°C	medium – 160°C	long (2 steps) – 160°C
Static curing	possible	possible	possible	possible	possible
VOC (Volatile Organic Compound)	~35%	~35%	~20%	no VOC	no VOC
Emissions	10–15%	10–15%	<5%	~2%	<7%
General description	<p>Damisol® 3309 is a solventless thermosetting unsaturated polyesterimide resin with stabilised vinyl toluene (Damidil® 9151) as monomer. Damisol® 3309 is the impregnating resin of our Samicabond® insulation system for class H¹⁾ electrical machines up to 15kV.</p> <p>¹⁾IEC 60216 10% weight loss of pure resin and 50% loss of flexural strength on finished insulation end-of-life criteria</p>	<p>Damisol® 3340 is a solventless thermosetting unsaturated polyesterimide resin with stabilised vinyl toluene (Damidil® 9151) as monomer. Damisol® 3340 is the impregnating resin of our Samicabond® insulation system for class H electrical machines up to 6,6 kV. Class 200°C²⁾ can be achieved in the Samicabond® system for traction. It is also used in high- and low-voltage applications requiring very high thermal class.</p> <p>²⁾UL Recognition File No. E 98 511: Helical Coil 224°C.</p>	<p>Permafil® 74050 is a new technology epoxy resin system that also uses vinyl toluene as reactive monomer but has very low emissions. It has been designed for very high temperature performance as well as excellent long-term electrical properties for machine designs up to and beyond 13.8 kV. Class H according IEC 60216 5% weight loss.</p>	<p>Damisol® 3420 is the new generation of anhydride and VOC-free epoxy resin for high-voltage global impregnation in VPI processes. In combination with film-based tape (Samicapor® 315.45) or glass-based (Samicapor® 366.56-10), we achieve outstanding mechanical, electrical but also chemical resistance properties on any class F (155°C) high-voltage machines up to 15KV.</p>	<p>Damisol® 3418 API is a one component class H high-voltage epoxy resin, without any VOC fulfilling the European legislation 1999/13/CE. Thermal index 200°C³⁾. Its low viscosity easy impregnation at room temperature. Outstanding behavior after ageing at high temperature. Also available in two components (Damisol® 3418-1A and Damisol® 3418-1B) for long transport.</p> <p>³⁾IEC 60216 10% weight loss of pure resin or 5% of impregnated mica end-of-life criteria. Tests according IEC 60034-18-31 are ongoing.</p>
Recommended mica tape for main wall insulation	Samicapor® 366.58 < 15 kV Samicapor® 366.53-01 < 11 kV Samicapor® 315.45 < 6.6 kV	Samicapor® 315.45 < 6.6 kV Samicapor® 366.58 < 6.6 kV Samicapor® 366.53-01 < 6.6 kV	Mica Mat® 2480XS < 13.8 kV Mica Mat® 2456XS < 6,6 kV Samicapor® 315.45 < 6.6 kV Samicapor® 366.56-10 < 6.6 kV Samicapor® 366.58 < 15 kV	Samicapor® 366.56-10 < 15 kV Samicapor® 315.45 < 6.6 kV	Samicapor® 366.58 < 15 kV Samicapor® 366.59-10 < 15 kV Samicapor® 366.53-01 < 11 kV Samicapor® 315.45 < 6.6 kV
Applications	HV Motors & Generators	HV Motors & Generators Traction motors	HV Motors & Generators	HV Motors & Generators	HV Motors & Generators Traction motors