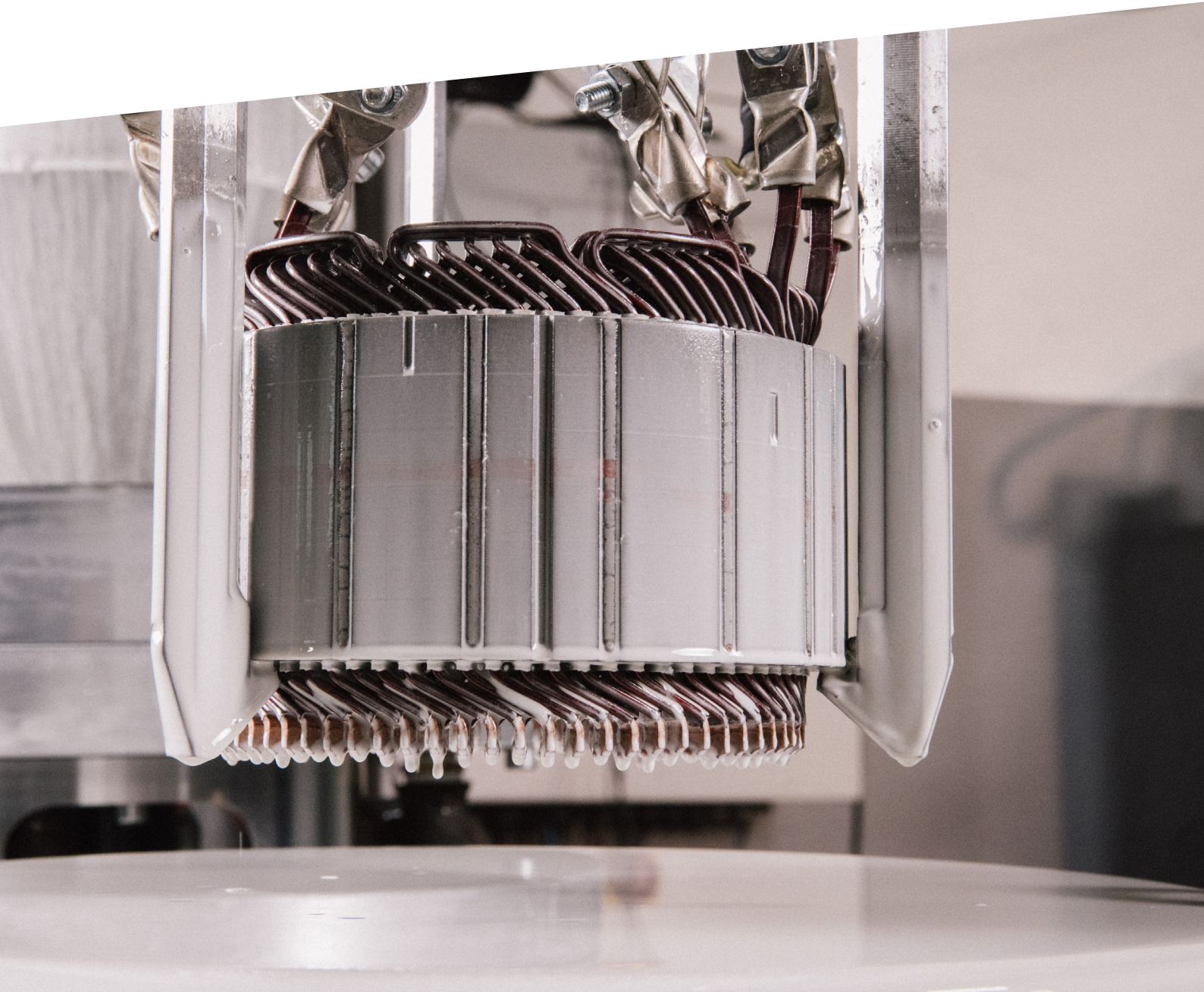


Energy Solutions Impregnating Resins

Product Overview Voltabas, Voltahyd,
Voltatex® (Additives, Thinners, Cleaners)



Energy Solutions - Impregnating Resins

Voltabas, Voltahyd

Product	Key Characteristics	Thermal Class (IEC 60085)	UL- Recogn- ition	Viscosity @ 25°C DIN 53019 [mPas]	Gel Time [min]	Emissions DIN EN 60455-3-5 [%]	Typical Curing Time
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Impregnating Resins

Product	Key Characteristics	Thermal Class (IEC 60085)	UL- Recogn- ition	Viscosity @ 25°C DIN 53019 [mPas]	Gel Time [min]	Emissions DIN EN 60455-3-5 [%]	Typical Curing Time
Voltabas 0302	Modified unsaturated polyester resin, single component	180°C (H)	✓	1000-1700	20.0-40.0 @ 100°C	≈0.8	2h @ 150°C
Voltabas 0303	Modified unsaturated polyester resin, single component	180°C (H)	✓	300-500	20.0-40.0 @ 100°C	≈0.6	1-2h @ 150°C
Voltabas 0307	Unsaturated polyester resin, epoxy-modified, single component	180°C (H)	✓	300-500	20.0-40.0 @ 100°C	≈0.8	2h @ 150°C
Voltabas 0307 TX	Unsaturated polyester resin, epoxy-modified, thixotropic single component	180°C (H)	✓	300-500	20.0-40.0 @ 100°C	≈0.9	2h @ 150°C
Voltabas 0310 M	Unsaturated polyesterimide resin, single component	180°C (H)	✗	1000-2000	8.0-12.0 @ 90°C	≈0.6	15 min @ 150°C

Product	Key Characteristics	Thermal Class (IEC 60085)	UL- Recogn- ition	Viscosity @ 25°C DIN 53019 [mPas]	Flow Time DIN 53211 [s]	Typical Curing Time tack free / ready to assembly
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Finishing Varnish/ Topcoat

Product	Key Characteristics	Thermal Class (IEC 60085)	UL- Recogn- ition	Viscosity @ 25°C DIN 53019 [mPas]	Flow Time DIN 53211 [s]	Typical Curing Time tack free / ready to assembly
Voltahyd 2220 red	Modified hybrid resin, single component, water based, low emission red pigmented	✓	✗	200-450	70-150 @ 23°C (4mm)	45-60 min @ 25°C / 24-36 h @ 25°C
Voltahyd 2220 grey	Modified hybrid resin, single component, water based, low emission grey pigmented	✓	✗	200-450	80-160 @ 23°C (4mm)	45 min @ 25°C / 24 h @ 25°C

Conductive Varnish

Product	Key Characteristics	Thermal Class (IEC 60085)	UL- Recogn- ition	Viscosity @ 25°C DIN 53019 [mPas]	Flow Time DIN 53211 [s]	Typical Curing Time tack free / ready to assembly
Voltahyd 2300	Modified alkyd resin, waterborne, single component, specially pigmented	✗	✗	300-1000	-	24 h @ 25°C / 2-5 min @ 140°C

- ✓ = listed
- ⊙ = pending
- ✗ = not listed

Shelf Life ≤ 25°C	Product Description	Typical Application	Dip & Bake (atmospheric)	Vacuum Process	VPI	Hot Dip-ping	Resistance Heating Process	UV-Curable	Trickle	Roll-Dip
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suitable for:

12 months	Low viscosity	Low voltage stators, rotors, transformers, (wind) generators	✓	✓	✓	✓	✓	✗	✓	✓
12 months	Very low viscosity	Low voltage stators, rotors, transformers, (wind) generators	✓	✓	✓	✓	✓	✗	✓	✓
12 months	Very low viscosity, low crack tendency	Low voltage stators, rotors, transformers, (wind) generators	✓	✓	✓	✓	✓	✗	✓	✓
12 months	Low draining losses, thixotropy adjustable, very low viscosity, low crack tendency	Low voltage stators, rotors, transformers, (wind) generators	✓	✓	✓	✓	✓	✗	(✓)	(✓)
3 months	Low viscosity, high reactive, short curing time	low voltage, small rotors and stators (e.g. alternators)	✗	✗	✗	✗	✗	✗	✓	✗

Shelf Life ≤ 25°C	Product Description	Typical Application	Dip & Bake (atmospheric)	Brushing & Spraying	Roll-Dip
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suitable for:

8 months	Quick drying, additional protection against external influences, mould resistance, tested in acc. with EN 45545-2, good adhesion to steel, galvanized substrates and aluminum	low voltage, transformers, stators, traction motors, (wind) generators	✓	✓	✗
6 months	Quick drying, additional protection against external influences, mould resistance, tested in acc. with EN 45545-2, good adhesion to steel, galvanized substrates and aluminum	low voltage, transformers, stators, traction motors, (wind) generators	✗	✓	✗

6 months	Quick drying, provide electrical conductivity on surfaces, air or fast oven drying, good adhesion on steel, glass and e.g. PET	Corona shielding	✓	✓	✓
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- ✓ = recommended
- ⊙ = conditionally recommended (please consult us)
- ✗ = not recommended

Energy Solutions - Impregnating Resins

Voltatex® Cleaner, Additive

Product	Key Characteristics	Shelf Life ≤ 25°C	Flash Point	Product Description
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Cleaning Agent

Product	Key Characteristics	Shelf Life ≤ 25°C	Flash Point	Product Description
Voltatex® T050	Propylenglycol ester, clear, transparent solvent mixture	12 months	46°C	Excellent cleaning properties for uncured residues of varnishes or resins, quick-drying surface
Voltatex® T060	Dibasic ester, clear, transparent solvent mixture	12 months	100°C	Excellent cleaning properties for uncured residues of solventborne/solventfree varnishes or resins
Water-borne Prepclean 3910 WB	Clear, transparent mixture of water and solvents	60 months	68°C	Cleaner for residues of Voltahyd series or other waterbased products, also used as preparatory cleaner

Product	Key Characteristics	Shelf Life ≤ 25°C	Product Description
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Additive

Product	Key Characteristics	Shelf Life ≤ 25°C	Product Description
Voltatex® H141	Yellow, pasty liquid hardener solution, free of peroxides	6 months	Can be added to Impregnating Resins (based on unsaturated polyester/polyesterimide) for adjusting the reactivity
Voltatex® H151	Organic peroxide white, fine-grained powder with 50% active ingredient	6 months	Can be added to Impregnating Resins (based on unsaturated polyester/polyesterimide) for low temperature curing at 80 - 120 °C
Voltatex® A341	Organic metal compound, dark-violet liquid	90 months	Catalyst for polymerization at room temperature of impregnating resins (based on unsaturated polyester / polyesterimide) with MEK-peroxide or Voltatex® H151
Voltatex® A200	Inhibitor, dark-brown liquid	12 months	Can be added to significantly reduce reactivity or stabilizing of dipping tanks with unsaturated polyester / polyesterimide
Voltatex® A401	Polyhydroxycarboxylic acid amid, transparent to slightly brown liquid, thixotropy agent	6 months	Can be added to Voltatex® gel coats or Voltabas 0307 TX for enhancing the viscosity

Energy Solutions - Impregnating Resins

Voltatex® Thinner Product Overview

Product	Key Characteristics	Shelf Life ≤ 25°C	Flow Time DIN 53211 [s]	Viscosity DIN 53019 @25°C [mPas]	Product Description
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Thinner

Voltatex® T031	Unsaturated aromatic hydrocarbon, clear, transparent and specially stabilized reactive thinner	6 months	<20 @ 23°C (4mm)	≈ 0,7	Can be added to Impregnating Resins Voltatex® 4000 series to adjust the required viscosity
Voltatex® T032	Unsaturated aromatic hydrocarbon, clear, transparent and specially stabilized reactive thinner	6 months	<20 @ 23°C (4mm)	≈ 0,8	Can be added to Impregnating Resins Voltatex® 4100 series to adjust the required viscosity
Voltatex® T033	Unsaturated methacrylate ester, clear, transparent and specially stabilized reactive thinner	6 months	<20 @ 23°C (4mm)	10-14	Can be added to Impregnating Resins Voltatex® 4200 series to adjust the required viscosity
Voltatex® T034	Unsaturated acrylate ester, clear, transparent and specially stabilized reactive thinner	6 months	-	60-100	Can be added to Impregnating Resins Voltatex® 4300 series to adjust the required viscosity, monomerfree, VOC-free
Voltatex® T035	Unsaturated methacrylate ester, clear, transparent and specially stabilized reactive thinner	6 months	-	≈ 30	Can be added to Impregnating Resins Voltatex® 4300 series to adjust the required viscosity; monomerfree, VOC-free
Voltatex® T040	Water, dest.	6 months	-	≈ 1	Can be added to Voltahyd series to adjust the required viscosity, VOC-free
Voltatex® T041	Waterbased amine solution, clear, transparent thinner and stabilizer	12 months	-	≈ 1	For stabilization of dipping tanks with Voltahyd 2220
Voltatex® T042	Waterbased solution clear, transparent thinner and accelerator	6 months	-	≈ 1	Accelerator for spray applications of Voltahyd series, VOC-free



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