

GROUP/SEGMENT	APPLICATION	PRODUCTS	APPLICATION	PRODUCTS
<b>WATER</b>				
<b>Industrial water</b>	Condensate polishing of industrial water	MonoPlus M 500 OH, MonoPlus M 800, MonoPlus M 800 KR, MonoPlus M 800 OH, MonoPlus MP 800, MonoPlus S 200 KR, MonoPlus SP 112, MonoPlus SP 112 H	Mixed bed for industrial water applications / Polishing	MonoPlus M 500 OH, MonoPlus M 800, MonoPlus M 800 OH, MonoPlus MP 800, MonoPlus S 100 H, MonoPlus S 200 KR, MonoPlus SP 112 H, NM 60, NM 91
	Condensate softening	MonoPlus S 200 KR, MonoPlus SP 112	Brackish water softening	CNP 80, CNP 80 WS, CNP 85, CNP 88
	Dealkalization of industrial water	CNP 80, CNP 80 WS, CNP 85, CNP 88	Pulp & paper	S 6268
	Deminerlization of industrial water	CNP 80, CNP 80 WS, CNP 85, CNP 88, MonoPlus M 500, MonoPlus M 500 OH, MonoPlus M 600, MonoPlus M 800, MonoPlus MP 64, MonoPlus MP 600, MonoPlus MP 800, MonoPlus S 100, MonoPlus S 100 H, MonoPlus S 200 KR, MonoPlus SP 112, MonoPlus SP 112 H, MP 62 WS, NM 60, NM 91, S 6268, VP OC 1071, VP OC 1072, VP OC 1073	Ready-to-use mixed beds	MonoPlus SM 1000 KR, NM 60, NM 91, SM 600 KR CL-frei, UltraPure 1292, UltraPure 1294 MD
	Highly regenerated SAC for conductivity measuring in industrial water applications	S 100 G1	Removal of organic constituents from industrial water	MonoPlus MP 64, MonoPlus MP 800, MP 62, MP 62 WS, S 6268, S 6328 A, S 6368 A
	Inert material	IN 42	Softening of industrial water	MonoPlus S 100, MonoPlus SP 112, S 1467
<b>Ultra-pure water</b>	Deminerlization of ultra-pure water	UltraPure 1213 MD, UltraPure 1221 MD, UltraPure 1231 MD, UltraPure 1241 MD, UltraPure 1243 MD, UltraPure 1261 MD, UltraPure 1261, UltraPure 1292	Polishing of ultra-pure water	UltraPure 1213 MD, UltraPure 1243 MD, UltraPure 1292, UltraPure 1293 MD, UltraPure 1294 MD
<b>Power industry</b>	Condensate polishing in the power industry	MonoPlus M 500 OH, MonoPlus M 800, MonoPlus M 800 KR, MonoPlus MP 800, MonoPlus S 200 KR, MonoPlus SP 112, MonoPlus SP 112 H	Mixed bed in the power industry / Polishing	MonoPlus M 500 KR, MonoPlus M 500 OH, MonoPlus M 800, MonoPlus M 800 KR, MonoPlus M 800 OH, MonoPlus MP 800, MonoPlus S 100, MonoPlus S 100 H, MonoPlus S 200 KR, MonoPlus SP 112, MonoPlus SP 112 H, SM 600 KR CL-frei
	Highly regenerated SAC for conductivity measuring	S 100 G1	Removal of organic constituents in the power industry	MonoPlus MP 64, MonoPlus MP 800, MP 62, MP 62 WS, S 6268, S 6328 A, S 6368 A
	Dealkalization in the power industry	CNP 80, CNP 80 WS, CNP 85, CNP 88	Softening in the power industry	MonoPlus S 100, MonoPlus SP 112, S 1467
	Deminerlization in the power industry	CNP 80, CNP 80 WS, CNP 85, CNP 88, MonoPlus M 500, MonoPlus M 500 OH, MonoPlus M 600, MonoPlus M 800, MonoPlus MP 64, MonoPlus MP 600, MonoPlus MP 800, MonoPlus S 100, MonoPlus S 100 H, MonoPlus S 200 KR, MonoPlus SP 112, MonoPlus SP 112 H, VP OC 1071, VP OC 1072, VP OC 1073		
<b>Nuclear</b>	Make-up water treatment - Deminerlization	CNP 80, CNP 80 WS, MonoPlus M 500, MonoPlus M 500 OH, MonoPlus M 600, MonoPlus M 800, MonoPlus MP 64, MonoPlus MP 800, MonoPlus S 100, MonoPlus S 100 H, MonoPlus S 200 KR, MonoPlus SP 112, MonoPlus SP 112 H, MP 62 WS, NM 60, NM 91, S 6268, VP OC 1071, VP OC 1072, VP OC 1073	Primary circuit	MonoPlus M 500 KR, MonoPlus M 800 KR, MonoPlus MP 500 KR, MonoPlus MP 800 KR, MonoPlus S 100 KR, MonoPlus S 200 KR, MonoPlus SM 1000 KR, MonoPlus SP 112 KR, S 100 KR/H CL-frei, SM 600 KR CL-frei
	Primary circuit - Conditioning of leakage water	MonoPlus M 500 KR, MonoPlus M 800 KR, MonoPlus MP 500 KR, MonoPlus MP 800 KR, MonoPlus S 100 KR, MonoPlus S 200 KR, MonoPlus SM 1000 KR, MonoPlus SM 1000 KR- <sup>7</sup> Li, MonoPlus SP 112 KR, S 100 KR/H CL-frei, SM 600 KR CL-frei	Secondary circuit - Condensate treatment	MonoPlus M 500 KR, MonoPlus M 800 KR, MonoPlus MP 500 KR, MonoPlus MP 800 KR, MonoPlus S 100 KR, MonoPlus S 200 KR, MonoPlus SM 1000 KR, MonoPlus SP 112 KR, S 100 KR/H CL-frei, SM 600 KR CL-frei
	Primary circuit - Fuel element storage pool	MonoPlus M 500 KR, MonoPlus M 800 KR, MonoPlus MP 500 KR, MonoPlus MP 800 KR, MonoPlus S 100 KR, MonoPlus S 200 KR, MonoPlus SM 1000 KR, MonoPlus SP 112 KR, S 100 KR/H CL-frei, SM 600 KR CL-frei	Secondary circuit - Blowdown treatment	MonoPlus M 800 KR, MonoPlus MP 500 KR, MonoPlus MP 800 KR, MonoPlus S 100 KR, MonoPlus S 200 KR, MonoPlus SM 1000 KR, MonoPlus SP 112 KR, S 100 KR/H CL-frei, SM 600 KR CL-frei
	Primary circuit - Primary coolant treatment	MonoPlus M 500 KR, MonoPlus M 800 KR, MonoPlus MP 500 KR, MonoPlus MP 800 KR, MonoPlus S 100 KR, MonoPlus S 200 KR, MonoPlus SM 1000 KR, MonoPlus SM 1000 KR- <sup>7</sup> Li, MonoPlus SP 112 KR, SM 600 KR CL-frei	Secondary circuit - Generator coolant system	MonoPlus M 500 KR, MonoPlus M 800 KR, MonoPlus MP 500 KR, MonoPlus MP 800 KR, MonoPlus S 100 KR, MonoPlus S 200 KR, MonoPlus SM 1000 KR, MonoPlus SP 112 KR, S 100 KR/H CL-frei, SM 600 KR CL-frei
	Primary circuit - Radioactive wastewater treatment	MonoPlus M 500 KR, MonoPlus M 800 KR, MonoPlus MP 500 KR, MonoPlus MP 800 KR, MonoPlus S 100 KR, MonoPlus S 200 KR, MonoPlus SM 1000 KR, MonoPlus SP 112 KR, S 100 KR/H CL-frei, SM 600 KR CL-frei	Secondary circuit - Hydrazine removal	K 3433
	Primary circuit - Steam generator blow-down	MonoPlus M 500 KR, MonoPlus M 800 KR, MonoPlus MP 500 KR, MonoPlus MP 800 KR, MonoPlus S 100 KR, MonoPlus S 200 KR, MonoPlus SM 1000 KR, MonoPlus SP 112 KR, S 100 KR/H CL-frei, SM 600 KR CL-frei	Secondary circuit - District heating system	K 6333, MonoPlus M 500 KR, MonoPlus M 800 KR, MonoPlus S 100 KR, MonoPlus S 200 KR
<b>FOOD</b>				
<b>Sugar</b>	Decolorization of sugar liquors	S 2328, S 5428, S 6268, S 6328 A, S 6368, S 6368 A, S 6368 Sulfate, VP OC 1073, VP OC 1074	Removal of organic constituents from sugar liquors	S 2328, S 5428, S 6268, S 6328 A, S 6368, S 6368 A, S 6368 Sulfate, VP OC 1074
	Decolorization, deminerlization and inversion of liquid sugar	S 2328, S 2528, S 2568, S 2568 H, S 4328, S 4528, S 6268, S 6328 A, S 6368, S 6368 A, S 6368 Sulfate, S 8528	Reverse deminerlization of sugar liquors	S 6368, S 6368 A, S 8528
	Deminerlization and decolorization of inulin solutions	S 1468, S 2528, S 2568, S 4228, S 4268, S 6368, S 6368 Sulfate, S 6368 A, S 7468	Chromatographic separation of fructose / glucose	MDS 1368 Ca - 320, MDS 1368 Ca - 350
	Inversion of sucrose	S 2328	Softening of sugar thin juice	S 1428, S 1468, S 2528, S 2568, S 8528
	Polishing of sugar liquors	AF 5, S 7968	Sugar recovery from molasses	MDS 1368 K - 320, MDS 1368 Na - 320, MDS 1368 Na - 350
	Reduced molasses formation through exchange of alkali ions	K 2620, S 2528, S 2568		
<b>Sweeteners</b>	Deminerlization and decolorization of starch hydrolyzates / glucose, high fructoses, dextrose	S 1428, S 1468, S 2528, S 2568, S 2568 H, S 4228, S 4268, S 4328, S 4428, S 4528, S 7468	Deminerlization and decolorization of starch hydrolyzates / dextrose	S 2528, S 2568, S 2568 H, S 4428, S 4528
	Polishing of sweeteners	AF 5, K 2431	Chromatographic separation of fructose / glucose	MDS 1368 Ca - 320, MDS 1368 Ca - 350
	Deminerlization of raw polyalcohol solutions	S 2528, S 2568, S 4328, S 4428, S 4528, S 6368, S 6368 A, S 6368 Sulfate, S 8528	Size separation	MDS 2368
	Mixed-bed polishing of starch hydrolyzates	S 2568 H, S 7468		
<b>Gelatine</b>	Deminerlization of gelatine solutions	MP 62 BG, S 1428, S 1468, S 2528, S 2568, S 4228, S 4268, S 4328, S 4528, S 6328, S 6368 A, S 6368 Sulfate, VP OC 1072		
<b>Whey</b>	Deminerlization and decolorization of whey	S 1428, S 1468, S 2528, S 2568, S 4528, S 6368, S 6368 A, S 6368 Sulfate, S 7468, S 8528, VP OC 1072		
<b>Fruit juices</b>	Deminerlization and decolorization of fruit juice	S 1428, S 1468, S 2528, S 2568, S 4228, S 4268, S 4328, S 4528, S 6368, S 6368 A, S 6368 Sulfate	Polishing of fruit juices	AF 5, S 7968
	Ion exclusion of must or fruit juice	MDS 1368 Na - 320, MDS 1368 Na - 350	Debittering of orange juice	S 7968
<b>Food acids</b>	Deminerlization of citric acid	S 1428, S 1468, S 2528, S 2568, S 4428	Separation of food acids	MDS 4368
	Deminerlization of lactic acid	S 1428, S 1468, S 2528, S 2568, S 4428		
<b>Cartridge</b>	Dealkalization of tap water	CNP LF, CNP LF Na, S 8227, S 8229, S 8229 Plus		
<b>Potable water*</b>	Softening in dishwashing systems <small>*for further applications see segment WATER and CATALYSIS AND CHEMICAL PROCESSING</small>	MDS 1368 Na - 320, MDS 1368 Na - 350, S 1428, S 1467, S 1468, S 1468 F	Dealkalization of potable water	CNP LF, S 8227, S 8528
<b>Lysine</b>	Lysine separation	S 1468		
<b>Other foods</b>	Softening of pectin solutions	S 1428, S 1468, S 2528, S 2568		



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<b>CATALYSIS AND CHEMICAL PROCESSING</b>					
<b>Catalysis for synthesis</b>	Acrylic & aliphatic esters	K 1221, K 1461, K 2431, K 2621, K 2629	MTBE (methyl tertiary butyl ether) / TAME / ETBE	K 2620, K 2621, K 2624, K 2625, K 2629	
	Bisphenol A	K 1131, K 1131 S, K 1221	Phenol alkylates	K 2420, K 2431, K 2620, K 2629, K 2649	
	Isobutene dimerization	K 1481	TBA	K 2431, K 2621	
	Catalytic oxygen removal	K 3433, K 6363, K 7333	MMA	K 2431	
	Hydrogen peroxide decomposition	K 3433	MIBK	K 2625	
<b>Chloro-alkali electrolysis</b>	Brine softening without strontium and barium removal issues	(MonoPlus) TP 260	Simultaneous silica and alumina removal from brine	(MonoPlus) TP 208	
	Brine softening with strontium and barium removal issues	(MonoPlus) TP 208	Iodine removal from brine (patent protected)	S 6328 A	
	Mercury removal from brine circuit	MonoPlus TP 214	Organics removal from brine	AF 5, VP OC 1064 MD PH	
	Ni removal from brine	(MonoPlus) TP 207			
<b>Process stream recycling</b>	Iron removal from zinc electroplating bath	(MonoPlus) TP 207	Removal of alumina from phosphoric acid	MonoPlus SP 112	
	Iron and chromium(III) removal from electroplating bath containing chromic acid	MonoPlus SP 112	Recycling of spent battery acid to remove lead	MonoPlus SP 112	
	Iron and zinc removal from chromium(III) containing electroplating bath	VP OC 1026	Hydrochloric acid removal from spent hydrazine	K 6362	
	Zinc removal from nickel and cobalt sulfate electrolyte bath	VP OC 1026	Recycling of printed circuit board rinse water	MonoPlus MP 64, (MonoPlus) TP 207	
	Removal of organics and surfactants from electrolyte bath	AF 5, VP OC 1064 MD PH	Recycling of chemical and mechanical polishing process water	(MonoPlus) TP 207	
	Removal of iron(III) or zinc from spent hydrochloric acid (> 10 % HCl)	K 6362	Recycling of metal finishing rinse water	MonoPlus MP 64, MonoPlus SP 112	
	Recycling of sulfuric acid pickling bath containing aluminium or iron as impurities	MDS 6268, MDS 7268	Recycling of monoethylene glycol solutions by desalination	MonoPlus MP 64, MonoPlus SP 112	
<b>Purification of chemicals</b>	Anion removal (in general)	K 6362, MonoPlus MP 64, MP 62	Mercury removal from NaCl or HCl produced from acidic flue gas scrubbing water	MonoPlus TP 214	
	Kation removal (in general)	K 2629, MonoPlus SP 112	Chlorate removal from 40% caustic soda	MonoPlus SR 7	
	Acid removal (in general)	K 6362, MonoPlus MP 64, MP 62	Potassium hydroxide removal from polyether	K 2431, K 2621, S 2568	
	Decolorization	K 7367, S 6328A, VP OC 1064 MD PH	Desalination of petrochemical C4-C5 fractions	K 1461	
	Aldehyde removal (in general)	VP OC 1065	Phenol purification	K 2431	
	Mercaptan removal (in general)	K 6362	Organics removal from hydrochloric acid	VP OC 1064 MD PH	
	Mercury removal from liquid cracker feedstocks (patent protected)	MonoPlus TP 214	Uranium removal from crude phosphoric acid	(MonoPlus) TP 260	
	Mercury removal from natural gas condensates	MonoPlus TP 214	Removal of iron, lead and cadmium from adipic acid process streams	(MonoPlus) TP 207	
<b>GreenFuels for biodiesel and bioethanol</b>	Conversion of free fatty acids in crude oil into methyl esters	GF 101	Glycerine demineralization	GF 303	
	Removal of glycerine from biodiesel	GF 201, GF 202	Desulfurization of bio-ethanol	GF 606	
	Glycerine polishing	GF 404, GF 505	Removal of acid from sugar solutions recovered from wood digests	GF 606	
	Glycerine deashing	GF 303			
<b>Decentral metal recovery from process streams</b>	Recovery of copper from printed circuit board aqueous process streams	(MonoPlus) TP 207	Recovery of silver from photo laboratory rinse water	MonoPlus TP 214	
	Recovery of precious metals Au, Ag, Pt, Pd, Ir, Os, Rh, Re from acidic solution	MonoPlus TP 214	Recovery of silver from photo laboratory rinse water containing thiosulfate complexes	MP 62	
	Recovery of silver and mercury from spent analytical solutions used for COD determination	MonoPlus TP 214	Recovery of cyanide or chloride complexes of noble metals	K 6362, MP 62	
	Recovery of chromic acid from surface plating rinse water	MP 62	Recovery of noble metals from process streams of catalyst manufacturers	MonoPlus TP 214	
	Recovery of rhodium catalyst (e.g. wilkinson type) from organic mother liquor	MonoPlus TP 214	Recovery of noble metals from gold smith workshops	K 6362, MonoPlus TP 214, MP 62	
	Recovery of copper from NH4Cl etching bath	(MonoPlus) TP 207			
<b>Potable water* / Ground water remediation</b>	Removal of nickel from potable water	(MonoPlus) TP 207	Removal of natural organic matter from potable water	K 6362, MonoPlus MP 64, MP 62, VP OC 1073	
	Removal of iron and manganese from potable water	(MonoPlus) TP 207	Removal of surfactants (MBAS) from potable water	VP OC 1064 MD PH	
	Removal of lead and thallium from potable water	(MonoPlus) TP 207	Removal of methyl-tertbutyl-ether (MTBE) from potable water	AF 5	
	Removal of hardness and lead from potable water	S 8227, S 8229	Removal of radium from potable water	S 1468	
	Removal of uranium from potable water	S 6368 Sulfate	Removal of free and complexed cyanide from groundwater	K 6362, MP 62	
	Removal of boron from reverse osmosis permeates in seawater desalination	MonoPlus MK 51	Removal of mercury from groundwater	MonoPlus TP 214	
	Removal of nitrate from potable water	MonoPlus M 600, MonoPlus SR 7	Removal of chromate from groundwater	K 6362, MP 62	
	Removal of arsenic (III and V) from potable water	FO 36	Removal of BTEX from groundwater	AF 5, VP OC 1064 MD PH	
	Removal of antimony from potable water	FO 36	Removal of chlorinated hydrocarbons (AOX) from groundwater	AF 5, VP OC 1064 MD PH	
	Removal of iodide, bromide and bromate from potable water	MonoPlus SR 7	Removal of phenol from groundwater	VP OC 1064 MD PH	
	Removal of perchlorate from potable water	MonoPlus SR 7			
	Removal of pesticides from potable water	AF 5, VP OC 1064 MD PH	*for further applications see segment WATER and FOOD		
	<b>Mining / Metal extraction / Metal refining</b>	Nickel recovery from pregnant liquor solutions by resin in pulp (RIP)	MonoPlus TP 207 XL	Recovery of gold from cyanidic leach	K 6362, MonoPlus SR 7
		Copper recovery from pregnant liquor solutions by resin in pulp (RIP)	MonoPlus TP 207 XL	Recovery of gold and silver from thiosulfate leach	K 6362, MonoPlus SR 7
Recovery of copper from waste water of flotation units (RIP)		MonoPlus TP 207 XL	Recovery of zinc from hydrochloric acid	MonoPlus MP 64, MP 62	
Removal of iron from copper solutions		MonoPlus TP 207 (XL)	Recovery of molybdenum from copper sulfate concentrates	MonoPlus MP 64, MP 62	
Recovery of copper from nickel solutions		(MonoPlus) TP 207	Recovery of rhenium from sulfatic metal concentrates	MonoPlus MP 64, MonoPlus MP 500, MP 62	
Recovery of copper from zinc-sulfate solutions		(MonoPlus) TP 207	Recovery of scandium from hydrochloric nickel and cobalt solutions	MonoPlus MP 64, MP 62	
Removal of calcium and magnesium for ammoniacal cobalt solutions		(MonoPlus) TP 208	Recovery of lanthan ... lutetium from solutions of rare earth metals	K 2629, MonoPlus SP 112	
Recovery of copper, cobalt and nickel from tailing dam water		(MonoPlus) TP 207	Recovery of indium from zinc-sulfate electrolytes	VP OC 1026	
Recovery of scandium from nickel and cobalt concentrates		(MonoPlus) TP 207	Removal of zinc from nickel/cobalt electrolytes	VP OC 1026	
Removal of antimony and bismuth from copper-sulfate concentrates		(MonoPlus) TP 260	Recovery of zinc from copper electrolytes	VP OC 1026	
Removal of zinc and cadmium from sulfatic nickel and cobalt solutions		(MonoPlus) TP 260	Recovery of zinc from geothermal brine	K 6362	
Removal of titanium from sulfuric acid containing solutions		(MonoPlus) TP 260	Recovery of boron from magnesia-chloride brines	MonoPlus MK 51	
Recovery of uranium from phosphoric acid		(MonoPlus) TP 260	Recovery of gold by carbon in pulp (CIP)	AF 5	
Recovery of uranium from carbon dioxide leach		K 6362, K 6462, K 6368	Recycling of acid used in metal winning (e.g. sulfuric acid in titanium industry)	MDS 7268	
<b>Waste water treatment</b>	Removal of heavy metals (in general)	(MonoPlus) TP 207, MonoPlus TP 214, (MonoPlus) TP 260	Removal of chrome from waste water of tanning plants	K 6362, (MonoPlus) TP 207, MP 62	
	Removal of arsenic from waste water of detoxification plants (chemical weapons and pesticides destruction)	FO 36	Removal of fluoride from waste water of glas-, ceramic, electronic chip- and solar panel manufacturers	(MonoPlus) TP 260, alumina doped	
	Recovery of copper from mining waste water	(MonoPlus) TP 207	Removal of heavy metals from landfill leachates	(MonoPlus) TP 207	
	Polishing of waste water after heavy metals precipitation in detoxification plants	(MonoPlus) TP 207	Removal of zinc and copper from waste water of viscose fibre producers	(MonoPlus) TP 207	
	Removal of boron from effluents of ceramic-, glas- and electronic industry	MK 51	Removal of uranium from waste water of uranium mines	(MonoPlus) TP 207	
	Removal of mercury from waste water of chloro-alkali-industry	MonoPlus TP 214, MP 62	Removal of organics (e.g. phenol, aniline, ...) from waste water	VP OC 1064 MD PH, AF 5	
	Removal of lead and mercury from waste water of battery manufacturers	(MonoPlus) TP 207, MonoPlus TP 214	Removal of silver, copper, tin and iron from waste water of mirror manufacturers	(MonoPlus) TP 207	
	Removal of copper from printed circuit board fabrication waste water	(MonoPlus) TP 207	Removal of heavy metals such as nickel from waste water of automotive producers	(MonoPlus) TP 207	
	Removal of free cyanide and thiocyanate from waste water	FO 36	Removal of chromium and molybdenum from cooling water blow down	K 6362	
	Removal of mercury from flue gas scrubbing water	MonoPlus TP 214	Recover of cobalt and manganese from phthalic acid production	(MonoPlus) TP 207	
	Removal of zinc from caolin production waste water	(MonoPlus) TP 207	Removal of ammonia from alkaline waste water	(MonoPlus) TP 207, copper doped	
		Removal of nitrate and ammonium from fertilizer production units	K 2629, S 4428		
<b>Pharma / Biotechnology</b>	Chromatographic separations / adsorptions	AF 5, VP OC 1064 MD PH	Enzyme carrier	CNP 105, VP OC 1600	
	Decolorization	VP OC 1064 MD PH	Peptide purification	MonoPlus SP 112	
<b>Hydroponics</b>	Hydroponics	HD 50			
<b>Gas treatment</b>	Deodorization (refrigerators, vacuum cleaners, ...)	AF 5	Removal of acidic gases such as hydrochloric acid, sulfur dioxide, ..	MP 62	
	Removal of ammonia and amines	K 2649	Removal of carbon dioxide from passenger cabin air (submarines, space-ships, ...)	VP OC 1065	