ROHM AND HAAS

WATER TREATMENT POLYMERS

WATER TREATMENT GLOBAL PRODUCT SELECTION GUIDE

Introduction to Water Treatment Selection Guide

This bulletin provides the essential information on our water treatment product line and is designed to enable you to select the right product for your requirements.

ROHM AND HAAS Company manufactures a wide range of water treatment polymers under the ACUMER, OPTIDOSE, OROTAN, ROMAX and TAMOL trademarks to meet a variety of applications.

Many of the polymers are FDA and BGVV compliant. More details on registration are available from your local Rohm and Haas Company representative. All products are made in ISO 9002 certified manufacturing plants around the world. This selection guide contains some products that are not available in all geographic regions (see noted products).

2 Polymers
Product Selection Guide

ACUMER™ Polymers	Applications*	Chemical Nature	Molecular Weight (Mw)	Solids (%)	pH	Viscosity (typical, mPa.s)	Dosage as is (typical, ppm)	Features / Benefits
ACUMER™ 1000	CC / B	Acrylic homopolymer	2000	47 - 49	3.2 - 4.0	190	10 - 30	Scale inhibitor and dispersant for carbonates, sulfates and sparingly soluble salts. Particularly suitable for incorporation in acidic formulations. BGVV and FDA clearances apply**
ACUMER™ 1010	CC / B	Acrylic homopolymer	2000	42 - 44	6.5 - 8.0	180	10 - 30	Scale inhibitor and dispersant for carbonates, sulfates and sparingly soluble salts. Particularly suitable for incorporation in neutral or alkaline formulations. BGVV and FDA clearances apply**
ACUMER™ 1035‡	RO	Acrylic homopolymer w/ preservatives	2000	34 - 36	3 - 5	-	2 - 15	Scale inhibitor and dispersant for carbonates, sulfates and sparingly soluble salts. NSF-60 for potable water.
ACUMER™ 1050	SUGAR	Acrylic homopolymer	2150	47 - 49	3.2 - 4.0	190	10 - 20	Scale inhibitor for carbonates, sulfates and oxalates. Specially designed to comply with sugar industry regulations. Used alone or in acidic formulations. FDA clearances apply**
ACUMER™ 1051‡	SUGAR	Acrylic homopolymer	2150	42 - 44	6.5 - 8.0	180	10 - 25	Scale inhibitor for carbonates, sulfates and oxalates. Specially designed to comply with sugar industry regulations. Used alone or in neutral or alkaline formulations. FDA clearances apply**
ACUMER™ 1100	CC / B	Acrylic homopolymer	4500	47 - 49	3.2 - 4.0	800	10 - 30	Scale inhibitor and good dispersant for carbonates, sulfates and sparingly soluble salts. Particularly suitable for incorporation in acidic formulations. BGVV and FDA clearances apply. Kiwa and DWI drinking water approvals**

* B - Boilers; CC - Cooling Circuits; PP - Pulp and Paper; RO - Reverse Osmosis
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ACUMER™ Polymers	Applications*	Chemical Nature	Molecular Weight (Mw)	Solids (%)	pH	Viscosity (typical, mPa.s)	Dosage as is (typical, ppm)	Features / Benefits
ACUMER™ 1110	CC / B	Acrylic homopolymer	4500	44 - 46	6.5 - 7.5	850	10 - 30	Scale inhibitor and good dispersant for carbonates, sulfates and sparingly soluble salts. Particularly suitable for incorporation in neutral or alkaline formulations. FDA clearances apply**
ACUMER™ 1510	ST	Acrylic homopolymer	60000	24 - 26	1.6 - 1.8	160	-	Surface treatment application. Forms an adhesive film when dried (5% solution). EU food contact and FDA clearances apply**
ACUMER™ 1850	B	Methacrylate homopolymer	30000	29 - 31	9.0 - 10.8	125 - 325	10 - 30	General purpose scale inhibitor and dispersant. Exhibits very good thermal stability - most often used in boilers. Exhibits excellent chlorine stability. FDA clearances apply**
ACUMER™ 2000	CC / B	Carboxylic sulphonated copolymer	4500	42.5 - 43.5	3.8 - 4.6	270	10 - 30	Phosphates and zinc stabilizer for anti-scale/anti-corrosion water treatment formulations. Excellent silt dispersant. Enhances corrosion inhibition. EU food contact clearances apply**
ACUMER™ 2100	B / PP	Carboxylic sulphonated copolymer	11000	36.5 - 37.5	4.3 - 5.3	225	10 - 30	Same properties as ACUMER™ 2000. Good iron oxides dispersant. Complies with FDA food additives regulation. FDA clearances apply**
ACUMER™ 2200‡	CC	Carboxylic copolymer	2000	54 - 56	3.5 - 4.5	500	10 - 30	Carbonates and sulfates scale inhibitor. Particularly effective for harsh running conditions (high pH, high temperature, high scalants concentration). FDA clearances apply**

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ACUMER™ Polymers	Applications*	Chemical Nature	Molecular Weight (Mw)	Solids (%)	pH	Viscosity (typical, mPa.s)	Dosage as is (typical, ppm)	Features / Benefits
ACUMER™ 3100	CC / B	Carboxylic sulphonated nonionic terpolymer	4500	43 - 44	2.1 - 3.0	160	10 - 30	Phosphates and zinc stabilizer Same properties as ACUMER™ 2000. In addition, excellent efficiency in presence of soluble iron where acrylic homopolymers fail. Excellent dispersant for iron oxides.
ACUMER™ 4161	CC / B	Phosphino polycarboxylic acid	3600	51	3.3	500 - 2000	10 - 30	Scale inhibitor for carbonates, sulfates and sparingly soluble salts. Dispersants for particulate matter such as salt and clay. Eliminates need for phosphonates.
ACUMER™ 4300	CC / B / RO	Maleic multipolymer	2000	50	7.0	400 - 1200	10 - 30	Excellent scale inhibitor for carbonates, sulfates and sparingly soluble salts.
ACUMER™ 4800‡	CC / RO	Carboxylic copolymer	2000	54 - 56	3.5 - 4.5	500	10 - 30	Carbonates and sulfates scale inhibitor. Particularly effective for harsh running conditions (high pH, high temperature, etc). Kiwa and DWI drinking water approvals**
ACUMER™ 5000	CC / B	Carboxylic sulphonated non ionic terpolymer	5000	44 - 46	2.3 - 2.9	400	10 - 30	Same properties as ACUMER™ 3100. In addition, excellent scale inhibitor and dispersant for silica and magnesium silicate. EU food contact and FDA clearance apply**

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OPTIDOSE Polymers	Applications*	Chemical Nature	Molecular Weight (Mw)	Solids (%)	pH	Viscosity (typical, mPa.s)	Dosage as is (typical, ppm)	Features / Benefits
OPTIDOSE™ 1000	CC / B / RO	Acrylic homopolymer	2000	47 - 49	3.2 - 4.0	-	10 - 30	Traceable polymer. Same properties as ACUMER™ 1000. A tracer is incorporated in the polymeric chain, allowing a quick and easy concentration measurement using a test kit.
OPTIDOSE™ 2000	CC / B	Carboxylic sulphonated copolymer	4500	42.5 - 43.5	3.8 - 4.6	270	10 - 30	Traceable polymer. Same properties as ACUMER™ 2000. A tracer is incorporated in the polymeric chain, allowing a quick and easy concentration measurement using a test kit.
OPTIDOSE™ 3100	CC / B	Carboxylic sulphonated non ionic terpolymer	4500	43 - 44	2.1 - 3.0	160	10 - 30	Traceable polymer. Same properties as ACUMER™ 3100. A tracer is incorporated in the polymeric chain, allowing a quick and easy concentration measurement using a test kit.
OPTIDOSE™ 4210‡	CC	Polymaelic acid	800	49 - 51	1.0 - 2.0	-	10 - 30	General purpose scale inhibitor/ dispersant effective on a variety of formulants and scale formers. Superior calcium carbonate inhibition. Performs well in high alkalinity and hardness. Traceable polymer which allows efficient amount of polymer use.

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TAMOL***/ OROTAN™ Polymers	Applications *	Chemical Nature	Molecular Weight (Mw)	Solids (%)	pH	Viscosity (typical, mPa.s)	Dosage as is (typical, ppm)	Features / Benefits
TAMOL*/ OROTAN™ 731A/731K**	B / PP	Carboxylic copolymer	10000	24 - 26	9.5 - 10.5	100	10 - 30	General scale inhibitor and dispersant. Particularly effective for iron dispersion. Good thermal stability.
TAMOL*/ OROTAN™ 850**	B	Methacrylate homopolymer	30000	29 - 31	9.0 - 10.8	125 - 325	10 - 30	General purpose scale inhibitor and sludge dispersant. Very good thermal stability.
TAMOL*/ OROTAN™ 960**	B	Methacrylate homopolymer	5000	39 - 41	8.0 - 9.0	200 - 700	10 - 30	General purpose scale inhibitor and sludge dispersant. Very good thermal stability.
TAMOL*/ OROTAN™ SN**	PP	Arylsulphonate polymer	-	94	NA	NA	1000 - 2000	Tall oil recovery in paper mill. Improves separation of tall oil and lignin in soap skimming. In addition, it retards the deposition of lignin on the equipment. FDA clearances apply**
ROMAX™ Polymers								
ROMAX™ 7000	OF	Acrylic based polymer in emulsion	High	17.5 - 18.5	2.4 - 3.4	40	5 - 10	Clarifier for residual oil in water. Flocculates oil particles and suspended solids and increases the settling rate. Very efficient when oil content in water is less than 1%.
ROMAX™ 7100	OF	Acrylic based polymer in emulsion	High	17.5 - 18.5	2.5 - 3.5	<200	5 - 10	Clarifier for residual oil in water. Flocculates oil particles and suspended solids and increases the settling rate. Very efficient when oil content in water is less than 1%.
ROMAX™ 7200‡	OF	Carboxylic copolymer	3000	52 - 54	3.6 - 4.4	600	10 - 30	Very good carbonates and sulfates scale inhibitor and good dispersant. Prevents scale in formation and protects production equipment.
ROMAX™ 7300	OF	Carboxylic copolymer	3500	49 - 51	3.2 - 4.0	1500	10 - 30	Carbonates and sulfates scale inhibitor and good dispersant. Particularly effective to prevent barium and calcium sulfate scale built up in the reservoir (squeeze treatment). FDA clearances apply**
ROMAX™ 7630‡	OF	Carboxylic sulphonated non ionic terpolymer	4500	43 - 44	2.1 - 3.0	160	10 - 30	Carbonates and sulfates scale inhibitor. Particularly effective in presence of soluble iron. Excellent dispersant for iron oxides and all other particles.

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*** Tamol is a trademark of Rohm and Haas in North America, Oroton outside NAR.

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Polymers	ACUMER™ 1000/1010	ACUMER™ 1035‡	ACUMER™ 1050/1051	ACUMER™ 1100/1110	ACUMER™ 1850	ACUMER™ 4161	ACUMER™ 4300
Applications*	CC - B	RO	SUGAR	CC - B - RO	B	B	CC - B - RO
Calcium Tolerance	Average	Average	Average	Poor	Average	Average	Average
Thermal Stability	Good	Good	Good	Good	Excellent	Good	Good
High pH Stability *(in formulation)*	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Good
Low pH Stability *(in formulation)*	Good	Good	Good	Average	Excellent	Good	Good
$CaCO_3$ Inhibition	Good	Good	Good	Good	Average	Good	Excellent
Phosphate Stabilization	Poor	Poor	Poor	Poor	Poor	Poor	Poor
SiO_2 Scale Control	Poor	Poor	Poor	Poor	Poor	Poor	Poor
$BaSO_4/SrSO_4$ Inhibition	Good	Good	Good	Good	Poor	Average	Excellent
Silt Dispersion	Average	Average	Average	Average	Average	Average	Average
$CaSO_4$ Inhibition	Good	Good	Good	Average	Poor	Good	Excellent
Fe_2O_3 Dispersion	Poor	Poor	Poor	Poor	Poor	Poor	Poor
Phosphonate Stabilization	Poor	Poor	Poor	Poor	Poor	Poor	Poor
Potable Approval	-	NSF - 60	-	KIWA	-	-	-

Polymers	OPTIDOSE/ ACUMER™ 2000	ACUMER™ 2100	ACUMER™ 2200	OPTIDOSE ACUMER™ 3100	ACUMER™ 4800	ACUMER™ 5000	TAMOL/ OROTAN 731A/731K
Applications*	CC - B - RO	B - PP - RO	CC	CC - B - RO	CC - RO	CC - B - RO	B - PP
Calcium Tolerance	Average	Excellent	Excellent	Good	Excellent	Excellent	Excellent
Thermal Stability	Average	Average	Poor	Average	Poor	Average	Average
High pH Stability *(in formulation)*	Excellent	Excellent	Poor	Excellent	Poor	Excellent	Excellent
Low pH Stability *(in formulation)*	Excellent	Excellent	Average	Excellent	Average	Excellent	Poor
$CaCO_3$ Inhibition	Average	Average	Excellent	Average	Excellent	Average	Poor
Phosphate Stabilization	Excellent	Excellent	Average	Excellent	Average	Excellent	Average
SiO_2 Scale Control	Average	Average	Poor	Good	Poor	Excellent	Average
$BaSO_4/SrSO_4$ Inhibition	Poor	Poor	Good	Poor	Good	Poor	Poor
Silt Dispersion	Excellent	Excellent	Good	Excellent	Good	Excellent	Excellent
$CaSO_4$ Inhibition	Poor	Poor	Excellent	Poor	Excellent	Poor	Poor
Fe_2O_3 Dispersion	Good	Good	Poor	Excellent	Poor	Excellent	Excellent
Phosphonate Stabilization	Excellent	Excellent	Poor	Excellent	Poor	Excellent	Poor
Potable Approval	NSF - 60	NSF - 60	-	-	KIWA	-	-

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Polymers	OPTIDOSE™ 1000	OPTIDOSE™ 2000	OPTIDOSE™ 3100	OPTIDOSE™ 4210
Applications*	CC - B	CC - B	CC - B	CC
Calcium Tolerance	Average	Average	Good	Good
Thermal Stability	Good	Average	Average	Poor
High pH Stability *(in formulation)*	Excellent	Excellent	Excellent	Good
Low pH Stability *(in formulation)*	Good	Excellent	Excellent	Good
$CaCO_3$ Inhibition	Good	Average	Average	Excellent
Phosphate Stabilization	Poor	Excellent	Excellent	Poor
SiO_2 Scale Control	Poor	Average	Good	Poor
$BaSO_4/SrSO_4$ Inhibition	Good	Poor	Poor	Average
Silt Dispersion	Average	Excellent	Excellent	Average
$CaSO_4$ Inhibition	Good	Poor	Poor	Average
Fe_2O_3 Dispersion	Poor	Excellent	Excellent	Poor
Phosphonate Stabilization	Poor	Excellent	Excellent	Poor

Polymers	ROMAX™ 7200	ROMAX™ 7300	ROMAX™ 7630
Applications*	OF	OF	OF
Calcium Tolerance	Good	Average	Good
Thermal Stability	Poor	Good	Average
High pH Stability *(in formulation)*	Poor	Excellent	Excellent
Low pH Stability *(in formulation)*	Poor	Excellent	Excellent
$CaCO_3$ Inhibition	Good	Good	Average
Phosphate Stabilization	Average	Average	Excellent
SiO_2 Scale Control	Poor	Poor	Excellent
$BaSO_4/SrSO_4$ Inhibition	Good	Excellent	Poor
Silt Dispersion	Good	Good	Excellent
$CaSO_4$ Inhibition	Excellent	Excellent	Poor
Fe_2O_3 Dispersion	Poor	Poor	Excellent
Phosphonate Stabilization	Poor	Poor	Excellent

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Rohm and Haas Primary Materials

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