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PHYSICAL AND ANALYTICAL DATA

STEARIC ACID ETHOXYLATE (SEA)

RHU CHEM	APPEARANCE AT 25° c	SAPO-NIFICATION VALUE	IODINE VALUE	HLB	ACID VALUE	MOLECULAR WEIGHT	MELTING POINT
SEA-5.0	Soft solid	111±5	≤1.0	8.89	111-117	≈ 505	28
SEA-6.5	Soft solid	100±5	≤1.0	9.7	99-105	≈ 570	28
SEA-8	Waxy cream	89±5	≤1.0	11.1	89-95	≈ 637	30
SEA-10	Pasty solid	78±5	≤1.0	12.6	83-87	≈ 725	31
SEA-12	Pasty solid	70±5	≤1.0	13.00	67-73	≈ 813	32
SEA-20	Waxy solid	61±5	≤1.0	15.12	46-52	≈ 1165	34
SEA-30	Waxy solid	53±5	≤1.0	16.46	32-38	≈ 1605	36
SEA-40	Waxy solid with a faint, bland, fat like odor, off white to light tan in color	42±5	≤1.0	17.22	24-30	≈ 2046	38
SEA-50	Solid with a bland, fat like odor or odorless	35±5	≤1.0	17.71	19-25	≈ 2486	42

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LAURIC ACID ETHOXYLATE (LEA)

RHU CHEM	APPEARANCE AT 25° c	SAPO-NIFICATION VALUE	IODINE VALUE	HLB	MOLECULAR WEIGHT	PH
LEA-5.0	Soft solid viscous	135±5	≤ 0.5	10.48	≈ 420	6.00-8.00
LEA-6.5	Soft solid viscous	117±5	≤ 0.5	11.77	≈ 486	6.00-8.00
LEA-8.0	Clear liquid	103±5	≤ 0.5	12.75	≈ 552	6.00-8.00
LEA-10	Clear liquid	89±5	≤ 0.5	13.75	≈ 640	6.00-8.00
LEA-15	Pasty liquid	66±5	≤ 0.1	15.35	≈ 861	6.00-8.00
LEA-20	Waxy solid	52±5	≤ 0.1	16.30	≈ 1081	6.00-8.00
LEA-30	Waxy solid	37±5	≤ 0.1	17.37	≈ 1521	6.00-8.00
LEA-40	Waxy solid	29±5	≤ 0.1	17.96	≈ 1962	6.00-8.00

OLEIC ACID ETHOXYLATE (OEA)

RHU CHEM	SAPO-NIFICATION VALUE	IODINE VALUE	HLB	ACID VALUE	MOLECULAR WEIGHT	PH
OEA-5.0	111±5	52-57	8.89	111-113	≈ 502	6.00-8.00
OEA-6.5	99±5	47-52	10.10	99-102	≈ 568	6.00-8.00
OEA-8	89±5	42-47	11.11	89-91	≈ 634	6.00-8.00
OEA-10	78±5	37-41	12.19	78-80	≈ 723	6.00-8.00
OEA-15	61±5	28-31	14.01	59-61	≈ 943	6.00-8.00
OEA-20	49±5	23-26	15.15	48-50	≈ 1163	6.00-8.00
OEA-30	35±5	17-20	16.49	35-37	≈ 1603	6.00-8.00
OEA-40	28±5	13-15	17.24	27-29	≈ 2045	6.00-8.00

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MYRISTIC ACID ETHOXYLATE (MEA)

RHU CHEM	SAPO-NIFICATION VALUE	PH VALUE	HLB	MOISTURE CONTENT MAX.	MOLECULAR WEIGHT
MEA-5.0	101±5	6.00-8.00	9.85	≤1.0	≈ 449
MEA-6.5	88±5	6.00-8.00	11.11	≤1.0	≈ 515
MEA-8	78±5	6.00-8.00	12.16	≤1.0	≈ 581
MEA-10	68±5	6.00-8.00	13.17	≤1.0	≈ 669
MEA-15	64±5	6.00-8.00	14.87	≤1.0	≈ 889
MEA-20	61±5	6.00-8.00	15.88	≤1.0	≈ 1110
MEA-30	44±5	6.00-8.00	17.05	≤1.0	≈ 1550

COCONUT FATTY ACID ETHOXYLATE (CEA)

RHU CHEM	SAPO-NIFICATION VALUE	PH VALUE	HLB	MOISTURE CONTENT MAX.	MOLECULAR WEIGHT	IODINE VALUE
CEA-5.0	134±5	6.00-8.00	10.02	≤1	≈ 435	5±1
CEA-6.5	117±5	6.00-8.00	11.50	≤1	≈ 501	5±1
CEA-8.0	103±5	6.00-8.00	12.50	≤1	≈ 567	4±1
CEA-10	89±5	6.00-8.00	13.50	≤1	≈ 655	3±1
CEA-15	67±5	6.00-8.00	15.00	≤1	≈ 875	3±1
CEA-20	54±5	6.00-8.00	16.00	≤1	≈ 1095	2±1
CEA-30	38±5	6.00-8.00	17.00	≤1	≈ 1535	1±1
CEA-40	30±5	6.00-8.00	19.05	≤1	≈ 1975	1±1

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APPLICATIONS IN PHARMACEUTICAL FORMULATION OR TECHNOLOGY

RHU CHEM-SEA are generally used as emulsifiers in oil-in-water type creams and lotions. Their hydrophilicity or lipophilicity depends on the number of ethylene oxide units present; the larger the number, the greater the hydrophilic properties. RHU CHEM-SEA-40 has also been used as an emulsifying agent in intravenous infusions.

RHU CHEM-SEA are particularly useful as emulsifying agents when astringent salts or other strong electrolytes are present.

They can also be blended with other surfactants to obtain any hydrophilic-lipophilic balance for lotions or ointment formulations.

Use	Concentration
Auxiliary emulsifier for o/w intravenous fat emulsion	0.5-5
Emulsifier for o/w creams or lotions	0.5-10
Ophthalmic ointment	7
Suppository component	1-10
Tablet lubricant	1-2

SOLUBILITY

Name	Solvent Ethanol (95%)	Mineral Oil	Water
RHU CHEM SEA-6	S	S	DH
RHU CHEM SEA-8	S	I	D
RHU CHEM SEA-12	S	I	S
RHU CHEM SEA-20	S	I	S
RHU CHEM SEA-40	S	I	S
RHU CHEM SEA-50	S	I	S

Where
D = Dispersible, S = Soluble, I = Insoluble and DH = Dispersible (with Heat)

STABILITY AND STORAGE

RHU CHEM-SEA are generally stable in the presence of electrolytes and weak acids or bases. Strong acids and bases can cause gradual hydrolysis and saponification.

The bulk material should be stored in a well-closed container, in a dry place, at room temperature.

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INCOMPATIBILITIES

RHU CHEM-SEA are unstable in hot alkaline solutions due to hydrolysis, and will also saponify with strong acids or bases. Discoloration or precipitation can occur with salicylates, phenolic substances, iodine salts and salts of bismuth, silver and tannins. Complex formation with preservatives may also occur.

The antimicorbial activity of some materials such as bacitracin, chloramphenicol, phenoxymethylpenicillin, sodium penicillin and tetracycline may be, reduced in the presence of RHU CHEM-SEA concentrations greater than 5% w/w.

SAFETY

Although RHU CHEM-SEA are primarily used as emulsifying agents in topical pharmaceutical formulations certain materials, particularly RHU CHEM-SEA-40 have also been used intravenous injections and oral preparations.

RHU CHEM-SEA has been extensively tested for toxicity in animals and are widely used in pharmaceutical formulations and cosmetics. They are generally regarded as essentially nontoxic and non-irritant materials.

HANDLING PRECAUTIONS

Observe normal precautions appropriate to the circumstances and quantity of material handled.

RHU CHEM-SEA that contains greater than 100 ppm of free ethylene oxide may present an explosion hazard when stored in a closed container. This is due to the release of ethylene oxide into the container headspace where it can accumulate, and so exceed the explosion limit.

Note: Above RHU CHEM Range are the running products. We can produce higher moles on customer specific demand and specifications can be altered as per customer requirement.