Castor Oil Fatty Acid Condensate — P C F Series

12-Hydroxy Stearic Acid Condensate — P H F Series

- PCF Series is a yellow transparent liquid at normal temperature and self-condensed castor oil fatty acid.
- PHF Series is a self-condensed 12-hydroxystearic acid. The higher degree of condensation results in lower melting point and in the form of hexamer PHF series keeps liquid at normal temperature.
- The main applications of PCF and PHF are metal working oil and pigment dispersant. When compounded into polyglycerin-ester, they are also used as food additives and cosmetics emulsifiers.

Product	Appearance 25℃	Neutralization Value mgKOH/g	Iodine Value $gI_2/100g$	Viscosity mPa・s/25℃	Pour Point ℃	Package
PCF-30	Yellow Transparent Liquid	30～40	85～95	1500	Max -25	16kgCN, 180kgDM
PHF-33	Yellow Brown Liquid (Precipitation)	28～35	Max 5	—	-10	16kgCN, 180kgDM

Highly Maleated Oil — HIMALEIN

- HIMALEIN is fat or fatty acid such as linseed oil and DCO-FA, into which maleic anhydride is added. With acid radical in maleic oil neutralized with ammonia and alkylamine, it can be used for synthetic water-soluble resin. To improve adhesion, it is combined with primer latex or paint. The main applications of metallic salt, amine salt and ester compound transformed from maleic fatty acid are rust preventive oil , and fiber finishing oil.

Product	Base	Color Gardner	Viscosity Gardner Holdt (25℃)	Neutralization Value mgKOH/g	Package
HIMALEIN LN-10	Linseed Oil	Max 11	S～W	45～65	17kgCN
HIMALEIN DF-20	DCO-FA	6～13	Z3～Z7	235～265	17kgCN, 180kgDM

Blown Oil — Celebonol

- Celebonol is a viscous oil which is oxidative polymerized castor oil or rapeseed oil. It improves wettability and dispersity of pigments, durability of coating films, adhesion and gloss. The main applications of Celebonol are plasticizer for NC lacquer or leather, calking compounds, adhesive, auxiliary material in the paint and rubber industry, printing ink, polyurethane and metalworking fluid.

Product	Base	Color Gardner	Viscosity Gardner Holdt (25℃)	Acid Value mgKOH/g	Package
Celebonol #10	Castor Oil	Max 12	Z～Z1	Max 10	16kgCN, 180kgDM
Celebonol #30	Castor Oil	Max 15	Z2～Z4	Max 15	16kgCN, 180kgDM
Celebonol #60	Castor Oil	Max 15	Z5～Z7	Max 20	16kgCN, 180kgDM
Celebonol R-40	Rapeseed Oil	Max 16	Z2～Z4	Max 15	16kgCN, 180kgDM

Surfactant　SURFRIC

■ Non-ionic type

- The lineup of the non-ionic type of Surfric has castor oil fatty acid polyoxyethylene glycol ester, polyoxyethylene addition of castor oil or hydrogenated castor oil, and sorbitan castor oil fatty acid ester.
- Because of superior lubricity and pigment wettability, Surfric is used as solubillizer for color material, perfume and essential oil, dispersant for oil / water based ink, cosmetics such as hair wax, anti rust agent, water-soluble metal-processing lubricant, textile processing aid, and mold release agent.

Product	Content	Appearance	H L B	Package
Polyoxyalkylene				
SURFRIC AQ-250	Castor Oil Fatty Acid PEG Ester	Yellow Liquid	10～11	18kgCN, 200kgDM
SURFRIC CO-10	Castor Oil EO 10 mol addition	Yellow Liquid	6～7	17kgCN ※
SURFRIC CO-40	Castor Oil EO 40 mol addition	Yellow Solid	13	18kgCN ※
SURFRIC HCO-10	Hydrogenated Castor Oil EO 10 mol addition	Light Yellow Liquid (crystal contained)	7～8	17kgCN ※
SURFRIC HCO-20	Hydrogenated Castor Oil EO 10 mol addition	Light Yellow Liquid (crystal contained)	10	18kgCN ※
SURFRIC HCO-40	Hydrogenated Castor Oil EO 40 mol addition	Light Yellow Solid	13	18kgCN ※
SURFRIC HCO-60	Hydrogenated Castor Oil EO 60 mol addition	Light Yellow Solid	15	18kgCN ※
Sorbitan				
SURFRIC #310	Sorbitan Mono Ricinoleate	Light Yellow Liquid	6～7	18kgCN, 200kgDM

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Dilluent･Plasticizer　RIC-CIZER　(environment-friendly)

- RIC-CIZER is a fatty acid ester derived from castor oil which is biodegradable and environment-friendly.
- RIC-CIZER C series and S-4 have low viscosity and high compatibility with different resins such as polyurethane, thus they are used as plasticizer.
- RIC-CIZER GR-301 and S-10 have low volatility and effectiveness in the need of heat stability.

Product	Pour Point ℃	Color Gardner	Acid Value mgKOH/g	Viscosity mPa･s/25℃	Ignition Loss 125℃×3hr	Flash Point ℃	Package
C-101 1)	-25	Max 5	Max 1.7	5～25	0.20%	204	16kgCN, 180kgDM
C-401 1)	-35	Max 6	Max 2.0	10～30	0.05%	236	16kgCN, 180kgDM
GR-301	-30	Max 4	Max 2.0	200～250	＜0.01%	292	16kgCN, 180kgDM
C-88	-15	Max 4	Max 0.5	Max 10	0.70%	184	16kgCN, 180kgDM
S-4 1)	-13	Max 100 2)	Max 1.0	5～15	0.30%	190	16kgCN, 180kgDM
S-8 1)	-69	Max 100 2)	Max 0.1	15～25	0.10%	211	16kgCN, 180kgDM
S-10	≦-50	Max 100 2)	Max 0.3	25～35	0.10%	270	16kgCN, 180kgDM

1) FDA registered products
2) APHA

Synthetic Wax　ITOHWAX

● ITOHWAX is synthetic wax derived from plant/animal oil and chemically classified in 2 types, amide type and ester type. Hydroxy fatty acid used as main material, ITOHWAX, which has hydroxyl group in the molecule, attracts interest from various industries with its unique property expected to perform.

● ITOHWAX J series are amide wax superior to general waxes in alkali resistance. Amide derived from 12 hydroxystearic acid has relatively higher melting point and is solid, fragile and less compatible with alcohol. All amide waxes have lubricity in polymer, antistatic effect and anti blocking effect dispersibility for dry color. There are also the various applications such as low or medium polarity solvent, gelling agent or viscosity improver for resin or mineral oil, thixotropic agent for solder or magnetic powder, mold release agent for lost wax.

● ITOHWAX J-50 is used in the field of cosmetics as an equivalent to vegetable tallow.

Hydroxy Fatty Acid Amide

Product	Appearance	Main Component	Melting Point ℃	Acid Value mgKOH/g	Hydroxyl Value mgKOH/g	Package
ITOHWAX J-50	Flake	Special Amide	78	Max 7.0	210	20kgBS
ITOHWAX J-420	Flake	N-hydroxyethyl-12-hydroxystearylamide	105	Max 5.0	295	20kgBS※
ITOHWAX J-530	Flake	N.N'-ethylene-bis-12-hydroxystearylamide	142	Max 5.0	—	20kgBS
ITOHWAX J-630	Flake	N.N'-hexamethylene-bis-12-hydroxystearylamide	135	Max 5.0	150	20kgBS
ITOHWAX J-700	Flake	N.N'-xylylene-bis-12-hydroxystearylamide	125	Max 5.0	145	20kgBS※

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● ITOHWAX J-500 and J-550S are used as anti blocking agent for printing ink or lubricant for plastics.

Fatty Acid Amide

Product	Appearance	Main Component	Melting Point ℃	Acid Value mgKOH/g	Hydroxyl Value mgKOH/g	Package
ITOHWAX J-500	Flake	N.N'-ethylene-bis-oleylamide	114	Max 5.0	—	20kgBS
ITOHWAX J-550S	Flake	N.N'-ethylene-bis-stearylamide	142	Max 5.0	—	20kgBS※

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● ITOHWAX E series are hydroxy stearic acid ester based wax which has relatively lower melting point and great water and oil resistance.Being similar to other natural wax, it has the applications such as compounding agent for cosmetics or crayon as dispersant of pigments, coupling agent for polar/non-polar materials, lubricant for plastics and mold release agent.

Hydroxy Stearic Acid Ester Wax

Product	Appearance	Main Component	Melting Point ℃	Acid Value mgKOH/g	Hydroxyl Value mgKOH/g	Package
ITOHWAX E-210	Block	methyl-12-hydroxystearate	50	Max 5.0	160	16kgCN
ITOHWAX E-230	Block	stearyl-12-hydroxystearate	70	Max 5.0	90	- ※
ITOHWAX E-70G	Flake	higher fatty acid ester	68	Max 5.0	335	20kgBS

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