

# Dispersant for nanoparticles ESLEAM® C/F series

## 1. Feature

- **Good dispersibility especially for particles with <100 nm.** It prevents particulates from flocculation and reduces the viscosity of dispersion liquid.
- **High content of active constituent (100%)** and low content of impurities (alkaline metal and halogen free).
- **Good solubility** for various solvents.
- **Easy to decompose clean** (residue: less than 1% at 400°C under N<sub>2</sub> atmosphere).

## 2. Typical properties, solubility and regulatory information

Item		C-2091I (Make to order)	C-2093I	C-2095I (Developed product)	F-1020A (Make to order)
Features		High polarity product of C-2093I	—	Low polarity product of C-2093I	Great viscosity reduction effect
Properties	Viscosity (mm <sup>2</sup> /s, 25°C)	1,600	2,000	2,500	380
	Acid-base	acidity			
	Appearance	Pale yellow or yellow liquid			Clear colorless liquid
Solubility *1	Water	×	×	×	○
	Ethanol	○	○	○	○
	Methyl ethyl ketone	○	○	○	○
	2- (2-Butoxyethoxy) ethyl acetate	○	○	○	○
	Terpineol	○	○	○	○
	Dihydroterpinyl acetate	○	○	○	○
	Toluene/Ethanol=1/1	○	○	○	○
	Toluene	×	×	×	○
Regulatory Information*2	ENCS (Japan)	✓	✓	✓	Low volume new chemical substances
	TSCA (USA)	—	—	—	—
	IECSC (China)	—*3	—*3	—*3	—
	ECL (Korea)	—*4	—*4	—*4	—
	TCSI (Taiwan)	✓*5	✓*5	✓*5	—

Representative values, not values of standard.

\*1 ○:transparent, ×:phase separation (5wt%, at 25°C)

\*2 ✓:On list, —:Not on list. Please ask us regarding the registration status of REACH for each product.

\*3 Record (Polymer of Low Concern) . If exporting to China, please contact our sales representative as exporters/importers are limited.

\*4 Polymer of Low Concern. If exporting to Korea, please contact our sales representative as importers are limited.

\*5 Please contact our sales representative for declaration or registration depending on quantity.

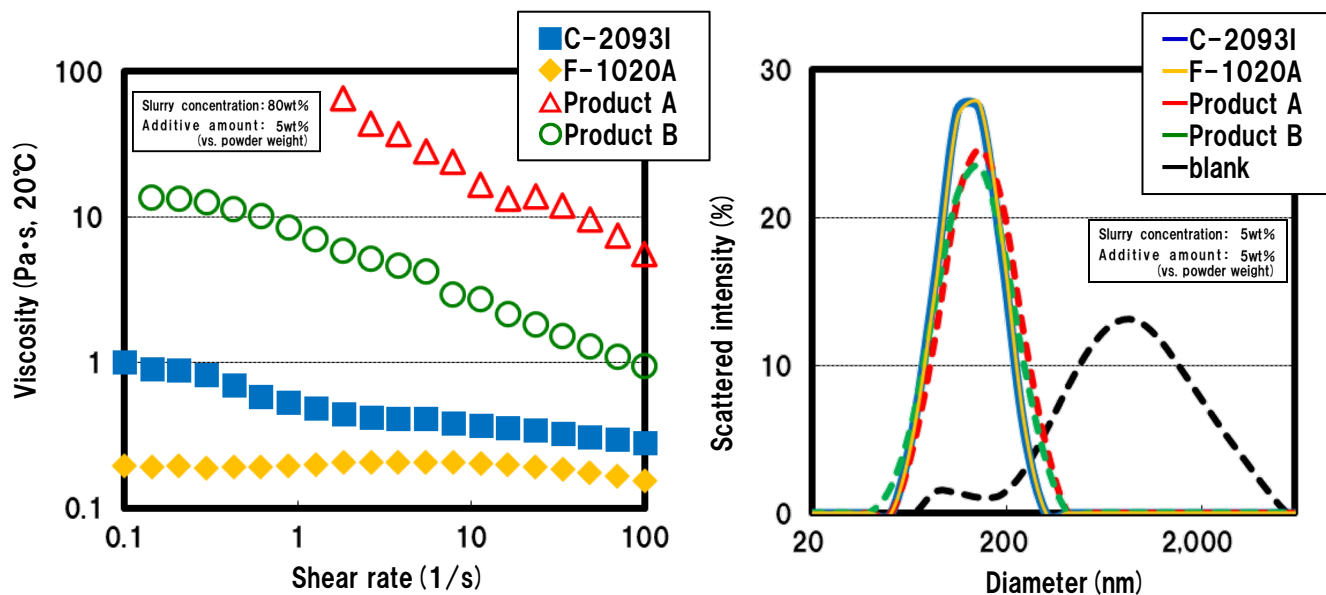
## 3. Additive amount (suggested)

The additive amount of ESLEAM® C series is normally from 0.5 to 10wt% (for powder weight) . As the optimal additive amount strongly depends on particle size or surface area of powder, we recommend some test using different amount of the product to determine the optimal additive amount.

## 4. Result of dispersing test

Powder: Barium titanate (average particle diameter: 50 nm, specific surface area: 21.4 m<sup>2</sup> /g)

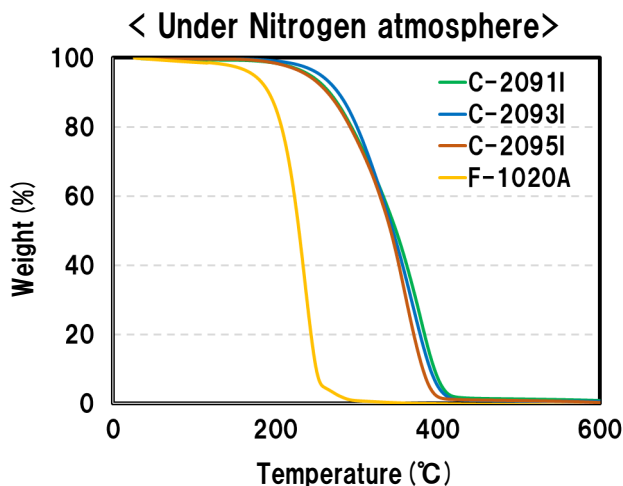
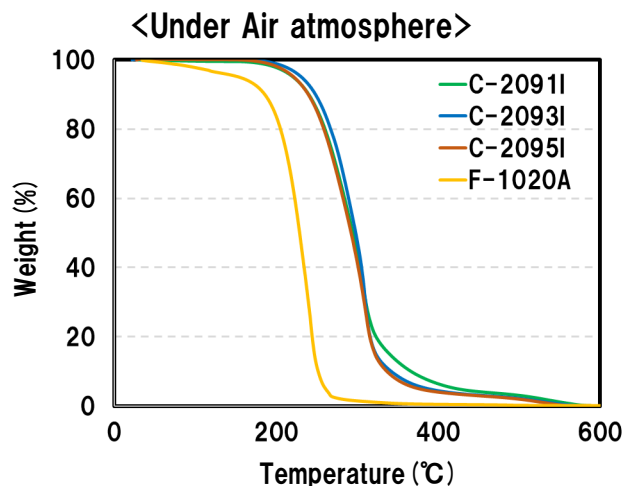
Solvent: Toluene/Ethanol = 1/1 (wt./wt.)



\*Not measured because slurry could not be obtained when no dispersant was added.

(Product A: Polyether acid and amine mixture, Product B : Phosphate type)

## 5. Thermogravimetric analysis



## 6. Handling precautions

Please check the latest Material Safety Data Sheet (SDS).

## 7. Others

This catalogue is made by NOF CORPORATION based on our best knowledge and all of listed data are reference only. (not guaranteed) We recommend to refer our SDS before using our products and special attention should be paid in handling because all chemicals have unknown hazard.

Please contact us when you have any other question.

ESLEAM is a registered trademark of NOF CORPORATION.

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