DuPont™ Capstone® Fluorosurfactants 1440

TECHNICAL INFORMATION

Description

Capstone® fluorosurfactant grade 1440 is a blend of fluorinated and hydrocarbon surfactants consisting of film-forming and foaming additives used in water-based portable extinguishers and/or in aqueous film-forming foam (AFFF) concentrates. The fluorosurfactants enable the formation of an aqueous film capable of spreading on the surface of burning fuels. It is made through a telomerization process versus an electrochemical fluorination process.

Applications

Capstone® fluorosurfactant grade 1440 is particularly effective as an additive in water-based portable extinguishers against fires of class A, class B and class F/K. These fluorosurfactants can also be used as a main component for AFFF and alcohol-resistant formulations (AR-AFFF) for hydrocarbons and polar liquid fires.

Benefits

Fire fighting foams made with DuPont™ Capstone® fluorinated surfactants extinguish fires quickly, protecting assets and personnel. They effectively extinguish fires with only a small quantity of foam, which results in less wastewater. Capstone® fluorosurfactant grade 1440 is suitable for almost all international standards of portable extinguishers, potentially reaching the highest ranking.

Typical Properties

Please refer to product specifications data sheet for guaranteed commercial specifications.

Appearance	Clear, yellow liquid
Active matter, wt%	24–26
Solvent	Water/butyl diglycol
Density at 20 °C (68 °F)	1.05–1.09
pH	7.0–8.5
Flash point	None
Freezing point, °C	< –18
Refractive index at 20 °C (68 °F)	1.390–1.410
Brookfield viscosity (spindle 61, speed 100), cP	10–30

General Properties

Solubility at ambient temperature	Soluble in water at any concentration
Surface tension and interfacial tension at 25 °C in aqueous solution at 1% in tap water	Surface tension 15.0–16.0 mN/m Interfacial tension, n-heptane 2.5–3.0 mN/m
Spreading coefficient SC:	SC = ST(H)-(ST(s) + ST(i)) SC = 1.2–2.7

ST(H) = surface tension of hydrocarbon solvent (n-heptane 20.2 mN/m)
ST(s) = surface tension of aqueous solution
ST(i) = interfacial tension hydrocarbon/solution

The spreading coefficient should be >0 in order to have the formation of a film at the surface of the hydrocarbon that stops the emission of hydrocarbon vapor.

Fire Testing, Laboratory Scale, n-heptane, Tap Water

	Extinguishing Time	Burn Back Time
AFFF 6% containing: Forafac® surfactant, grade 1203G (4.8% wt)	69s	12 min 40s
AFFF 6% containing: Capstone® fluorosurfactant, grade 1440 (4.8% wt)	66s	14 min 10s

AFFF formulation used (in %wt active ingredient)	
1203G	1.34%
1440	1.19%
Hydrocarbon co-surfactants:	
Anionic surfactant	4.1%
Amphoteric surfactant	1.1%
Butyl diglycol	8.5%
Diethanol Amine until pH 7.5 (water balance to 100%)	

Available in Asia Pacific Region only

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Precautions

Like any other chemical product, fluorinated surfactants must be handled and used with care. A safety data sheet (SDS) is available on request.

First Aid, Storage and Handling

See the material Safety Data Sheet (SDS) for specific product information. Normal care should be taken to avoid skin and eye contact. Before using this product, please read the current SDS and the precautionary statement on the product package. Follow all applicable directions.

DuPont™ Capstone® Repellents and Surfactants:

- Deliver more sustainable solutions with maximum performance
- Are short-chain molecules that cannot break down to PFOA in the environment
- Are supported by an in-depth foundation of data
- Are in compliance with REACH requirements
- Are listed on TSCA inventory
- Meet the goals of the U.S. Environmental Protection Agency 2010/15 PFOA Stewardship Program

For questions regarding technical data, commercialization, and sampling:

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