

## Technical Information

September 2013

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WF-No. 2771

# Disponil® BES/FES alkyl ethersulfates

® = Registered trademark of BASF

**Disponil® FES 27**

**Disponil® FES 32**

**Disponil® FES 147**

**Disponil® FES 993**

**Disponil® BES 20**

**Disponil® FES 77**

**Disponil® FES 61**

**Anionic surfactants used as alternatives for alkylphenol ethersulfates  
in emulsion polymerization**



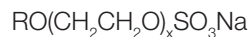
The Chemical Company

**Chemical nature**

The Disponil® FES types are sodium salts of fatty alcohol ethersulfates with differing ethoxylation degrees and the hydrophobe is based on a native C<sub>12</sub>-C<sub>14</sub>-fatty alcohol.

Conversely, Disponil® BES 20 is based on an iso-tridecyl alcohol.

The general formula is described as follows:



R(FES)=C<sub>12</sub>-C<sub>14</sub>

R(BES)=i-C<sub>13</sub>

X=2, 4, 7, 12, 20, 30, 50

**PRD-Nos.\***

30531415	Disponil® FES 27
30531403	Disponil® FES 32
30575217	Disponil® FES 147
30531409	Disponil® FES 993
30535680	Disponil® BES 20
30531406	Disponil® FES 77
30531405	Disponil® FES 61

\* BASF's commercial product numbers.

**Properties**

The Disponil® alkyl ethersulfates are colourless to slightly yellow liquids.

Disponil®	Unit	FES 27	FES 32	FES 147	FES 993	BES 20	FES 77	FES 61
Degree of ethoxylation	n EO	~2	~4	~7	~12	~20	~30	~50
Physical form (23 °C)		liquid	liquid	liquid	liquid	liquid	liquid	liquid
Dry residue, salt corrected (active matter, internal method 94005301)	%	~27*	~31	~27	~30	~29	~33	~32
pH-value (20 °C, 10%, EN 1262)		~7	~7,5	~7,5	~7,5	~7,5	~7,5	~7,5
Sodium sulfate (DGF H-III 8A)	%	~0,3	~0,4	~0,4	~0,4	~0,4	~0,4	~0,4
Pour point (DIN ISO 3016)	°C	<0	<5	<10	<0	<0	<5	<5
Density (DIN 51757, 23 °C)	g/cm <sup>3</sup>	~1,05	~1,05	~1,05	~1,1	~1,06	~1,05	~1,05
1,4-dioxane (Headspace-GC)	ppm	<5	<300	<300	<300	<1000	<300	<100
Surface tension, static (1% active substance, 25 °C, EN 14370)	mN/m	~33	~39	~42	~46	~43	~44	~44
Critical micelle concentration (25 °C, EN 14370)	g/l**	~0,4	~0,2	~0,3	~0,2	~0,5	~0,4	~0,4

\* Anionic surfactant (MW 382, ISO 2271)

\*\* Active substance

The information above is valid on the date of printing. Not all of these are part of the certificate of analysis.

The specified criteria are mentioned in the product specification which is available via your local BASF representative.

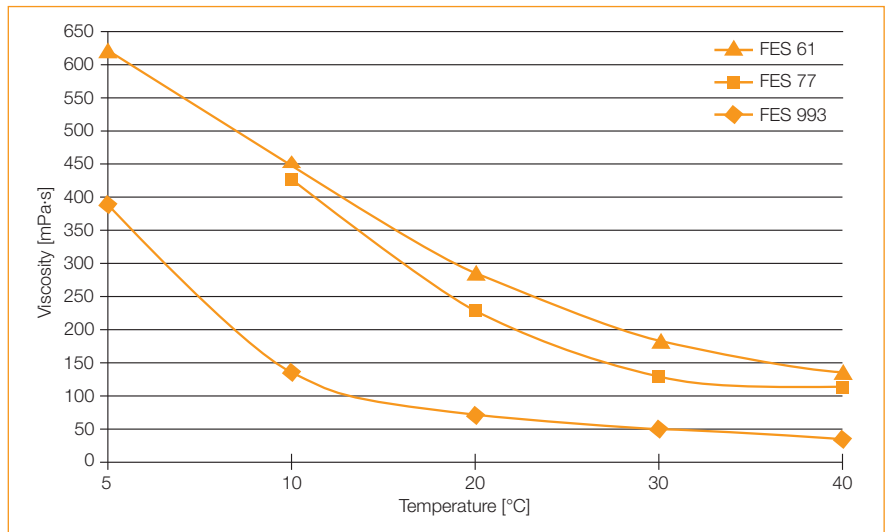
**Solubility**

Due to their anionic structure, Disponil® BES/FES alkyl ethersulfates are readily soluble in demineralized water.

**Viscosity**

The relationship of the viscosity as a function of temperature is always an important point to consider, as far as storage, shipping and dosage is concerned. The following diagram shows this relationship for some selected products of the FES-range.

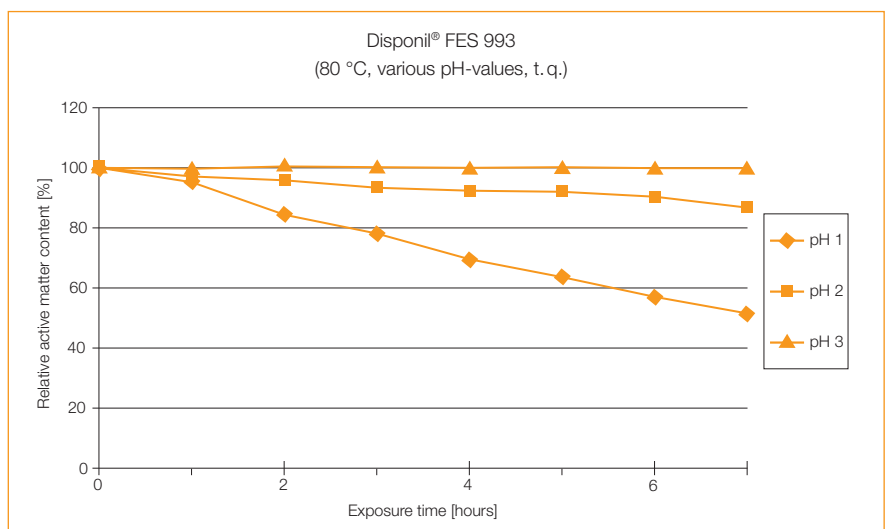
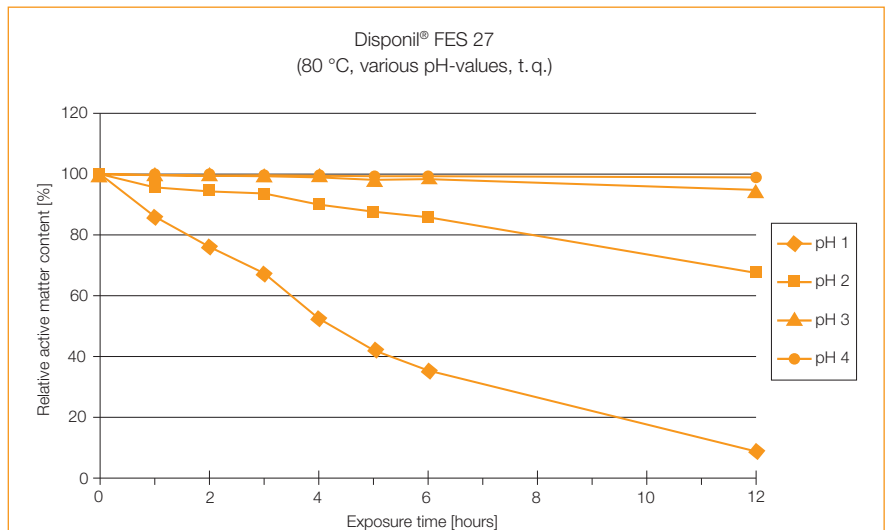
*Viscosity as a function of time*



**Stability against hydrolysis**

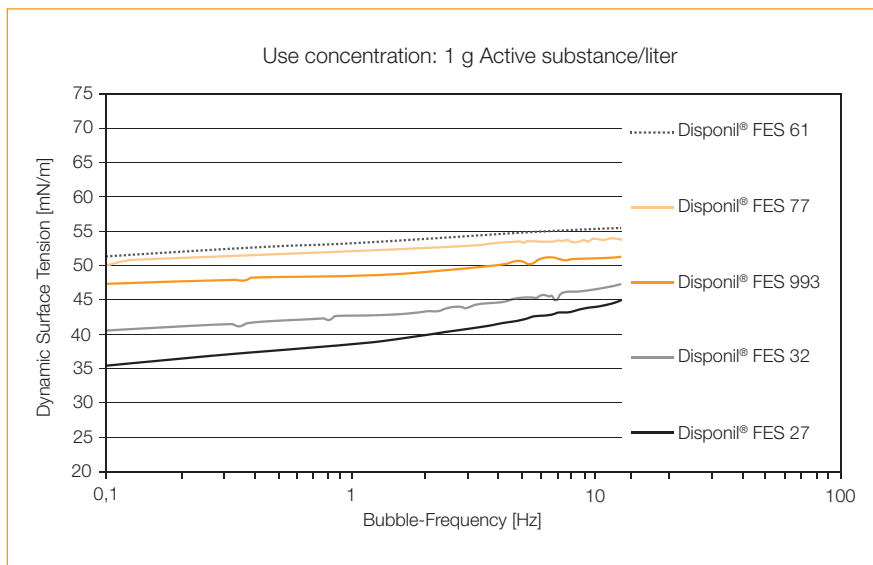
The products are relatively hydrolytically stable under typical acidic or alkaline conditions.

The following diagrams show examples of the relationship between hydrolytic stability and pH for some selected products.



## Dynamics

Dynamic Surface Tension is an indicative measure of the speed with which a surfactant can orientate at new interfaces. This is particularly important, for example, during the dosing processes. The following diagram compares the Dynamic Surface Tension of various FES-types.



## Storage

It is recommended to store the Disponil® BES- and FES-types at temperatures between 20 and 40 °C.

If the products are exposed to temperatures below their pourpoint they may form gels or become crystalline. The products are not damaged by low temperatures, but they will become heterogeneous and exhibit separation.

The homogeneous state is to be recovered by gentle heating and stirring.

Temperatures above 40 °C should be avoided to prevent product hydrolysis.

## Materials

The following materials may be used for the storage of the Disponil® BES- and FES-types:

- V4A-steel (1.4571)
- HDPE

## Shelf life

The Disponil® BES- and FES-types contain methylisothiazolinone (MIT) and benzisothiazolinone (BIT). They have a shelf life of at least 12 months, provided they are stored properly and drums are kept tightly sealed.

**Safety**

We know of no ill effects that could have resulted from using the Disponil® FES- und BES-types for the purpose for which they are intended and from processing them in accordance with current practice.

According to the experience we have gained over many years and other information at our disposal, the Disponil® FES- und BES-types do not exert any harmful effects on health, provided that they are used properly, due attention is given to the precautions necessary for handling chemicals, and the information and advice given in our safety data sheets are observed.

**Labelling**

Please refer to the latest safety data sheets for detailed, up-to-date information on classification, labelling and product safety.

**Note**

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