BASF
The Chemical Company

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Degressal® types

Degressal SD 20
Degressal SD 21
Degressal SD 23
Degressal SD 24
Degressal SD 30
Degressal SD 40

Silicone-free foam suppressors for detergents and cleaners, and for the chemical and allied industries

Chemical nature	Degressal SD 20	Fatty alcohol alkoxylate
	Degressal SD 21	Fatty alcohol alkoxylate
	Degressal SD 23	Glycerinalkoxylate
	Degressal SD 24	Glycerinalkoxylate
	Degressal SD 30	Carboxylic ester
	Degressal SD 40	Phosphoric ester

Properties

Degressal SD 20	Clear, yellowish liquid
Degressal SD 21	Clear, colourless or yellowish liquid
Degressal SD 23	Clear, colourless liquid
Degressal SD 24	Clear, colourless or yellowish liquid
Degressal SD 30	Clear, colourless or yellowish liquid
Degressal SD 40	Clear, colourless or yellowish liquid

Some physical properties are listed in the table below. These are typical values only, and not all of them are monitored on a regular basis.

Degressal		**SD 20**	**SD 21**	**SD 23**	**SD 24**	**SD 30**	**SD 40**
Physical form (23 °C)		liquid	liquid	liquid	liquid	liquid	liquid
Concentration	%	ca. 100	ca. 100	ca. 100	ca. 100	ca. 100	ca. 100
Density (DIN 51757, 23 °C)	g/cm^3	ca. 0.96	ca. 0.98	ca. 1.02	ca. 1.05	ca. 0.86	ca. 0.96
Viscosity (EN 12092, Brookfield, 60 rpm, 23 °C)	mPa·s	ca. 60	ca. 250	ca. 800	ca. 800	ca. 20	ca. 20
Setting point (DIN 51583)	°C	ca. –50	ca. –20	ca. –30	ca. –22	ca. –50	< –50
Acid number (ISO 2114)	mg KOH/g	ca. 0	ca. 0	ca. 0	ca. 0	ca. 1	ca. 2

The above information is correct at the time of going to press. It does not necessarily form part of the product specification.

A detailed product specification is available from your local BASF representative.

The solubility of Degressal types at 23 °C (10 % solution)

Solution	SD 20	SD 21	SD 23	SD 24	SD 30	SD 40
Distilled water	–	–	–	–	–	–
Potable water (ca. 2.9 mmol Ca ions/l)	–	–	–	–	–	
5 % caustic soda	–	–	–	–	–	–
5 % hydrochloric acid	–	–	–	–	–	–
5 % saline solution	–	–	–	–	–	–
Alcohols	+	+	+	+	+	+
Petroleum oils	+	+	-	–	+	+
Aromatic hydrocarbons	+	+	+	+	+	+
Chlorinated hydrocarbons	+	+	+	+	+	+

\+ = Clear solution
O = Opalescent solution
– = Insoluble

As the above table shows, all but one of the Degressal types are insoluble in water, but it is fairly easy to solubilize them in aqueous solutions with hydrotropes, glycols, alcohols or surfactants. Some products in the Degressal range may even form clear solutions in water when solubilized.

Applications

Foam suppresion

Degressal SD 20

Degressal SD 20 can be used in liquid detergents, either acid or alkaline, which contain cationic surfactants such as Lutensit® TC-KLC 50. Degressal SD 20 has the advantage that it nearly always forms a clear solution in concentrates before and after dilution.

It is added to cleaners in proportions of between 0.5 and 5 %.

Degressal SD 21

Degressal SD 21 is also used to suppress foam in acid and alkaline cleaners.

It is added in proportions of between 0.5 and 5 %.

Degressal SD 23, Degressal SD 24

Degressal SD 23 and SD 24 are particularly effective in antifoam formulations for the sugar industry, and in similar applications in the chemical and allied industries.

Rates of addition depend on local operating conditions and can only be properly determined in practical trials.

Degressal SD 30

The applications in which Degressal SD 30 is used are very similar to those for SD 20, but Degressal SD 30 is considerably more hydrophobic, which often makes it a more effective suppressor. It is normally used in powder formulations, as it is frequently instable when mixed into liquid formulations.

It is added to formulations in proportions of between 0.5 and 5 %.

Degressal SD 40

Degressal SD 40 is the most hydrophilic product in the range. This makes it very stable in liquid formulations but, because it is hydrophilic, it is somewhat less effective than the other products in the range as a foam suppressor. Degressal SD 40 is used as a levelling agent in dry-bright shoe and floor polishes, shoe whitening and car wax shampoos.

It is added at rates of 0.2 – 1.5 %.

Quick-break cleaners

Degressal SD 30 is particularly suitable for solvent-based emulsion-type cleaners that are required to break quickly. Adding 3 – 6 % of Degressal SD 30 to kerosene or high-boiling mineral spirits helps to reduce the oil content of the rinse water. Variations in the quality of solvents can influence results, and attention must be paid to this when making up formulations.

Areas of application

The applications described above have been summarized in the following table. Suggested formulations for some of the products discussed are also given.

Applications for Degressal types

	SD 20	**SD 21**	**SD 23**	**SD 24**	**SD 30**	**SD 40**
Acid cleaners	++	++	+	+	++	O
Alkaline cleaners	++	++	+	+	++	O
Liquid cleaners	++	++	+	+	++	+
Powder cleaners	++	++	O	O	++	O
Cleaners containing quats	++	+	+	+	++	–
Laundry detergents	+	–	–	–	O	–
Sugar refining	–	–	++	++	–	–
Quick-break cleaners	O	–	–	–	+	–
Dry-bright wax emulsions	O	–	–	–	O	++

++ = Main area of application
+ = Possible area of application
O = Can be used, but hardly suppresses foam
– = Unsuitable

Formulations

All figures refer to parts by weight.

Quick-break cleaners

Forms coarse emulsion

3-6	Degressal SD 30
97-94	Kerosene and/or mineral spirits (b. p. 180 – 210 °C)

Low-foaming cleaners

1. Liquid, neutral disinfectant

20	Lutensit TC-KLC 50
2	Degressal SD 20
78	Water

2. Liquid, acid

2	Plurafac® LF 120
2	Degressal SD 20
6	Isopropanol
90	Phosphoric acid (85 %)

3. Liquid, acid, disinfectant

4	Lutensit TC-KLC 50
0,2	Degressal SD 20
58.8	Phosphoric acid (85 %)
37	Water

4. Liquid, acid, disinfectant

15	Lutensit TC-KLC 50
4	Degressal SD 20
50	Phosphoric acid (85 %)
31	Water

5. Liquid, acid, disinfectant, with enhanced emulsification

16	Lutensit TC-KLC 50
9	Plurafac LF 403
2	Degressal SD 20
5	Isopropanol
30	Phosphoric acid (85 %)
38	Water

6. Liquid, alkaline, disinfectant

10	Lutensit TC-KLC 50
15	Plurafac LF 120
2	Degressal SD 30
2	Trilon® D Liquid
0.5	Ammonia 25 %
70.5	Water and additives

7. Liquid, alkaline

10	Lutensol GD 70
0.5	Degressal SD 20
2	Solid sodium hydroxide
87.5	Water

8. Powder, acid, disinfectant

3	Lutensit TC-KLC 50
1	Degressal SD 20
40	Sokalan® DCS
41	Sodium hexametaphosphate
15	Sodium sulfate

9. Powder, alkaline, disinfectant

3	Lutensit TC-KLC 50
0.5	Lutensol AT 25
1	Degressal SD 20
0.5	Pluronic RPE 3110
45	Pentasodium triphosphate
25	Soda ash
10	Sodium metasilicate
15	Sodium sulfate

10. Powder, alkaline, disinfectant

4	Lutensit TC-KLC 50
6.5	Trilon B Powder
1	Degressal SD 30
45	Pentasodium triphosphate
43.5	Soda ash and additives

All-temperature detergent

Manufactured by spraying A and B onto the powder components in a rotary agglomerator

Spray mixture A	10	Lutensol AO 8
	0.2	Fragrance
Spray mixture B	0.5	Degressal SD 20
	0.5	Korantin® SMK
Powder mixture	20	Pentasoidum triphosphate
	10	Sodium disilicate
	10	Sodium aluminium silicate
	10	Soda ash
	3.5	Trilon A 92
	2	Sokalan CP 5 Powder
	2	Soap
	1.5	CMC
	20	Sodium perborate
	0.2	Fluorescent brightener
	9.6	Sodium sulfate and enzymes

Light-duty detergent

Mixed in a rotary agglomerator

Spray mixture A	4	Lutensit TC-ALBN 50
	8	Lutensol AO 7
	2	Water
	0.2	Fragrance
Spray mixture B	1	Degressal SD 40
Powder mixture	20	Pentasodium triphosphate
	10	Sodium silicate
	10	Sodium aluminium silicate
	3.5	Trilon A 92
	2	Sokalan CP 5 Powder
	2	CMC
	37.3	Sodium sulfate

Safety

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

According to the experience that we have gained over many years and other information at our disposal, Degressal 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.

Handling

The normal precautions when handling chemicals must be observed when handling these products in their undiluted form. The skin should be protected, and safety glasses should be worn.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

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