



A Surfactant with Outstanding Wetting and Penetration Performance

Sulfonated Succinic Acid-Type Anionic Surfactant SANMOLIN OT-70

Surfactants with excellent wetting and penetration performance have long been used in a wide range of fields, including detergents, agrochemicals, printing, and textile processing. In this article, we introduce a versatile and reliable surfactant.

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TOPICS

Surfactants Providing More Than Just Cleaning: Wetting and Penetration Functions

Surfactants are substances that accumulate at interfaces where materials with different properties meet—for example, water and oil in dressings, or water and air in foam—and exhibit functions such as cleaning, foaming, wetting, and penetration. Because surfactants are widely used in detergents, their roles in cleaning and foaming are well known. However, they also play important roles in enhancing wetting, which allows liquids such as water to spread easily over surfaces, and penetration, which enables liquids to permeate into materials and narrow gaps. These functions are widely used in a wide range of applications, from everyday products to industrial processes.

In agriculture, for example, the wetting function of surfactants helps agrochemicals spread uniformly on leaf surfaces, which normally repel liquids, thereby improving their effectiveness.



Granular agrochemical formulation

In the printing industry, penetration properties are used to ensure that ink quickly permeates paper, preventing blotting and producing high-quality printed materials.

Functions Determined by Hydrophilic Groups and Hydrophobic Structures

Surfactants consist of molecular structures composed of hydrophilic groups, which are compatible with water, and hydrophobic groups, which are compatible with oils. The balance between these groups is crucial for achieving specific functions.

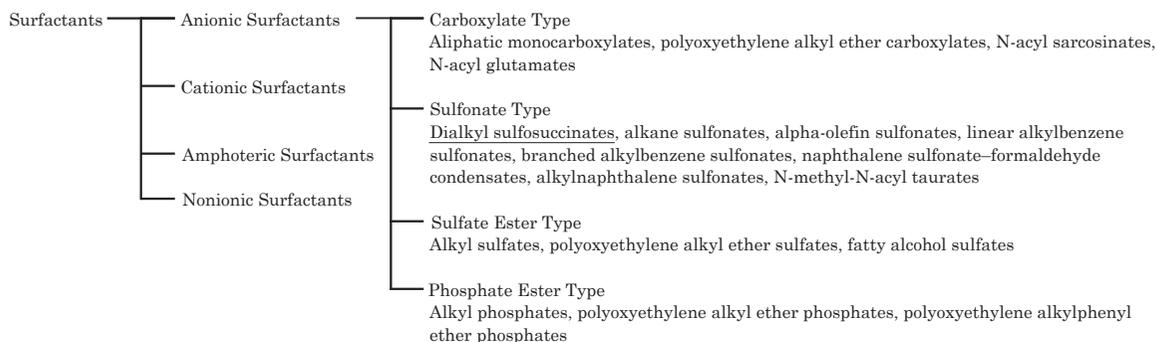
Their performance also depends on factors such as the ionic nature of the hydrophilic group (anionic, cationic, amphoteric, or nonionic), the type of hydrophilic group (carboxylate, sulfonate, sulfate ester, phosphate ester, etc.), the number, shape, and length of hydrophobic chains. These factors determine whether cleaning, foaming, wetting, or penetration properties are more strongly expressed.

Among anionic surfactants, those with a single straight hydrophobic chain (such as dodecyl-type structures) tend to pack densely at interfaces. As a result, they form stable foam and readily capture dirt and grime, making them suitable for applications requiring strong foaming and cleaning performance.

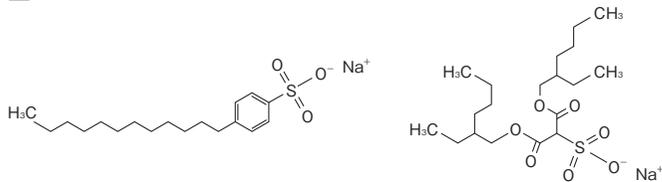
In contrast, anionic surfactants with two hydrophobic chains have more spread-out molecular structures. They do not pack tightly and can easily spread across interfaces, effectively reducing surface tension. This property enhances wetting and penetration.

A representative example of this type is sulfo-

■ Classification of Surfactants



■ Structural Formulas



Left: Linear single-chain type (Sodium dodecylbenzene sulfonate)

Right: Sodium dioctyl sulfosuccinate (SANMOLIN OT-70)

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succinate-based surfactants, which contain sulfonate groups ($-\text{SO}_3^-$) as hydrophilic moieties. Among them, dioctyl sulfosuccinate, which has branched hydrophobic chains, is particularly notable. Its compact molecular structure allows rapid migration to interfaces, resulting in excellent wetting and penetration performance.

These surfactants also rapidly migrate to oil-water or particle-water interfaces, reduce interfacial tension, and finely disperse oil droplets and particles. Consequently, they exhibit excellent emulsifying and dispersing properties. Because they adsorb strongly at interfaces and form stable coatings, they prevent re-aggregation, maintaining stable emulsions and dispersions over extended periods.

A Long-Trusted Surfactant: "SANMOLIN OT-70"

SANMOLIN OT-70 is a surfactant based on the dioctyl sulfosuccinate structure. Sanyo Chemical has been marketing this product for more than 50 years, and it has been widely used for decades. Among the various functions of surfactants, SANMOLIN OT-70 is particularly valued for its outstanding wetting and penetration performance, as well as its emulsifying and dispersing properties. These characteristics make it suitable for a broad range of applications.

In the detergent field, it is used in laundry detergents, industrial cleaners, and household cleaning products. When combined with other surfactants that offer strong cleaning power, SANMOLIN OT-70 enhances overall performance, making it especially useful in formulations designed to remove stubborn dirt and grime.

In textile processing, it is used as a penetration aid in dyeing and softening processes, enabling dyes and softeners to penetrate fibers more effectively.

In the coatings and ink industries, its ability to improve particle wetting and facilitate dispersion is used in dispersants for pigments and inorganic powders such as matting agents.

In addition, it is widely used in printing and agrochemical applications to improve wetting and penetration, as well as in the production of water-based

paints and adhesives as emulsifiers. In this way, SANMOLIN OT-70 meets diverse needs across many industries.

Delivering New Value Through Advanced Surfactants

Although more than 50 years have passed since its launch, SANMOLIN OT-70 continues to be newly adopted, reflecting its high performance and strong reputation. Sanyo Chemical aims to ensure that it remains a preferred additive for product development in various fields, with a continued focus on superior wetting and penetration properties.

At the same time, the company is actively developing new surfactants, including products with enhanced penetration performance and environmentally friendly formulations.

Through these efforts, Sanyo Chemical will continue to provide new value and develop products that contribute to society.

■ Typical Applications of SANMOLIN OT-70

Field	Function
Industrial & Household Detergents	Degreasing of metals and mechanical parts, removal of stubborn oil residues
Coatings & Inks	Improved substrate wetting, leveling, pigment dispersion
Textile Processing	Dyeing auxiliaries, softening treatment
Agrochemicals	Improved leaf wetting, uniform adhesion
Printing & Packaging	Improved print quality
Industrial Processes	Nanoparticle dispersion, reverse micelle reaction systems
Metal & Machinery Cleaning	Oil removal, degreasing