



For washing hands at home

# Preventing proliferation of bacteria that cause food poisoning

**S**ANYO  
**P**RODUCT  
**T**OPICS

Cases of food poisoning increase during summer.

Bacteria that cause food poisoning proliferate as the temperature and humidity increase, and infect people through things like food products.

This article introduces methods to protect people from such bacteria, and antibacterial agents that are used as a method of protection.



For cleaning in factories, etc.

## Helpful knowledge of methods to prevent proliferation of bacteria

Food poisoning has many causes, from bacteria and virus contamination, as well as when people ingest natural toxins from poisonous mushrooms, puffer fish, etc. Cases of food poisoning caused by bacteria in particular increase during summer, when there is a suitable environment for bacterial proliferation with high temperature and humidity. The best-known bacteria that cause food poisoning include; *Salmonella*, which is contained in chicken eggs, *Vibrio parahaemolyticus*, which is often present in seafood, and pathogenic *E. coli*, which is known to cause food poisoning from strain O-157. Preventing these bacteria from proliferating is the most effective method of preventing food poisoning.

Roughly classified, there are three methods to prevent bacterial proliferation. The first method is to kill the bacteria by means such as chemicals, the second is to suppress the bacterial activities, and the third is to remove the bacteria. In industrial fields, these three methods are incorporated to keep the food-related environments for manufacturing, distribution, and sales clean at food production factories, restaurants, supermarkets, etc.

In addition, at home, we employ the method of washing and rinsing off the bacteria with detergents in the kitchen and bathroom, rinsing off the bacteria with soap when we wash hands, and killing the bacteria with invert soap (cationic detergents).

Shampoos and body soaps contain preservatives to suppress bacterial proliferation and maintain product performance.

## Use of surfactants with excellent safety and durability

The chemicals that we use at home or industrial fields to prevent bacterial proliferation are called antibacterial agents or bacteria-removing agents. Those that are used in hospitals, etc., are called disinfectants and sterilizing agents, as they are considered pharmaceutical products. Antibacterial agents have been used since old times, but the use of chemical products such as bleaching powder (sodium hypochlorite) for bleaching and disinfection began around the 19th century. More chemicals were then introduced, one after another, including iodine tincture (alcohol solution of iodine), phenols, formaldehyde, and alcohols. Raw materials for invert soap and medicated soap with antibacterial effects were developed in the beginning of the 20th century, and these products became popularized. Today, we use surfactants that excel in safety as antibacterials and exhibit durability and quality of effects.

Utilizing our technology accumulated as a manufacturer of surfactants, Sanyo Chemical provides our 'CATION' Series, which include *cationic surfactants* with high antibacterial effects even at low concentrations, and 'Benzalkonium chloride (GEM)' for sterilizing detergents to be used in food factories and hospitals. We also feature our 'LEBON' Series, which are *amphoteric surfactants* with lower toxicity and irritation. Both series have been used widely in detergents that are used in cleaning and antibacterial processes in food factories, backyards of supermarkets, hospitals, etc. Bacteria also acquire resistance and the effect of the chemical decreases when the same antibacterial agent is used at the same place for a long time. To prevent development of resistance, the cation and amphoteric types are now used alternately in many cases.

Furthermore, 'Benzalkonium chloride (GEM),'

which is manufactured under strict control for use in pharmaceutical products and that is used in hospital operating rooms, is also used in hand soaps that are used at home.

## New powerful products with multiple functions in one agent are also appearing

New types of surfactants that serve the needs of consumers who are sensitive to the use of preservatives are appearing. 'NEWPOL DDE-10,' is a multifunctional product that is a nonionic surfactant developed as a thickener for shampoos, is an excellent chemical that delivers antibacterial effects to suppress the proliferation of bacteria with its molecular structure as well as having a moisture-retaining effect. The preservatives that are used in shampoos and body soaps can be reduced by using 'NEWPOL DDE-10' with these three functions. It has attracted the attention of customers as a surfactant that can eliminate the use of paraben, a popular preservative, in products. Shampoo products,



In shampoos

etc., that use 'NEWPOL DDE-10' also excel in foaming properties and have little change in viscosity while being low in irritation. Sanyo Chemical develops surfactants that protect people and animals from bacteria as we listen to the voices of our customers. In the future, we will continue to respond to the diversifying needs of the market in order to achieve clean and safe living.

### ■ Main disinfectant and antibacterial agents of our company

Main application	Product name	Main components	Ionicity	Features
Exclusive for manufacture of pharmaceutical products (for disinfection and cleaning at hospitals and homes)	Benzalkonium chloride (GEM)	Benzalkonium chloride	Cationic	Strong sterilization effect. Nearly colorless and low in odor. Conforms to the Japanese Pharmacopoeia.
	LEBON LAG-40	Dodecylaminoethyl-aminoethylglycine hydrochloride	Amphoteric	Low in deterioration of sterilization effect even in the presence of proteins, and delivers strong sterilization effect.
For industrial use (for disinfection and cleaning at factories and hospitals)	OSMORIN DA-50	Tetraalkylammonium adipate	Cationic	Halogen-free. Low metal corrosiveness.
	LEBON T-2	Alkyl (diaminoethyl) glycine hydrochloride	Amphoteric	Has a wide antibacterial spectrum. Low in deterioration of antibacterial effect even in the presence of proteins.

### ■ Thickeners that enable paraben-free products of our company

For perfumery and cosmetic products (shampoos, etc.)	NEWPOL DDE-10	Polyoxyethylene lauryl glycol	Nonionic	Delivers excellent thickening effect through interaction with other surfactants. Causes little irritation of the eyes and skin, and has moisture retaining property. Excels in antibacterial and antifungal effects.
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