SANYO PRODUCT TOPICS

Functions to spread quickly and to help the agricultural chemicals work effectively

Agricultural chemicals are essential for protecting crops from pests and weeds, increasing yields, and reducing the burden of farm work. They are used in the minimum amount necessary to minimize their impact on crops, the human body, and the environment. In this article, we will focus on auxiliary agents for agricultural chemical formulations to maximize the effects of various types of agricultural chemicals.

Agricultural chemicals to support crop production

The wild plants protect themselves from pests and weeds through bitterness, astringency, and poison. On the other hand, most of the crops we eat have been bred to be eaten by humans. Many of the crops that have been improved to enhance taste and nutritional value have weakened resistance. In addition, single crops are grown extensively in farm fields, making them more susceptible to pests and weeds that use them as a source of nutrition.

Therefore, without insecticides, fungicides, and weed control, there is a 30-40% loss of production in rice cultivation and a 90-100% loss of production in field cultivation. In addition, farmers need to spend an extra 10 to 15 days per 1000 square meters of paddy field and 20 to 30 days per 1000 square meters of field for weeding.

There are three types of pesticides: insecticides, herbicides, and fungicides. The active ingredients of pesticides are designed to penetrate and act effectively on pests in the case of insecticides, on weeds in the case of herbicides, and on crops in the case of fungicides.

Spread the minimum required amount evenly

Pesticides are effective even in very small amounts. If it is sprayed too much, it may cause chemical damage to crops and may also affect the human body and the environment as pesticide residues, so it is necessary to keep the amount used to the lowest possible level. For these reasons, in order to spray evenly over a large area, we do not use the original substance as it is, but rather add inorganic carriers (clay or bentonite), solvents, and various auxiliary agents (surfactants and stabilizers) to make pesticide formulations. Auxiliaries are used for three purposes. The first is to maximize the effect of the active ingredient with the minimum amount required, the second is to improve workability by making the pesticide form easier to use, and the third is to reduce the environmental impact while keeping the user safe. Among these, the second role is the most important, and the auxiliaries that perform dispersing, emulsifying, and penetrating functions in accordance with the formulation of the pesticide are so important that they determine the quality of the agricultural chemical formulation.

Pesticide formulations include powders, granules, hydrates, flowables (highly concentrated suspensions), emulsions, and liquid formulations. In Japan, where rice cultivation is prevalent, granular formulations are often used because they are easy to spray, less prone to drift, and dissolve quickly in water.

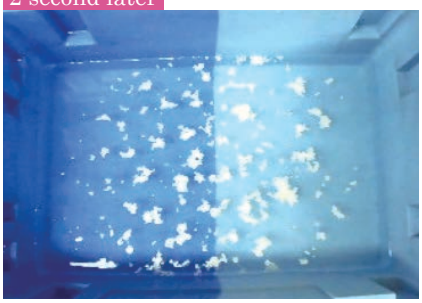
Granule aids for maximizing effectiveness

Auxiliary agents for granules are binders, dispersants, stabilizers, etc. Dispersants for granules must have the ability to break down quickly and disintegrate

Image of spreading granules on the surface of water

1 second later

2 second later



and spread evenly and quickly in water.
In addition, large granules (jumbo granules) are widely used to save labor in the spraying process. The jumbo granules require less spraying and can be easily sprayed by hand from the banks, which not only saves labor, but also has the advantage of being easy to spray at the right time. The Jumbo granules that was sprayed disintegrates and disperses in the water, spreading quickly and widely on the surface of the water, diffusing the original material in a uniform concentration over the entire paddy field.

Sanyo Chemical's superior performance auxiliary agent for agricultural chemical formulations

Sanyo Chemical has developed a lineup of disintegrating and spreading agents for granular formulations, including the TOXANON, SANMORIN, and NEWPOL PE series, utilizing its surfactant technology.
In addition to disintegrating and spreading agents, Sanyo Chemical also offers a wide range of auxiliary agents, including the NEWPOL PP series and PEG series for binders in granular formulations. Sanyo Chemical will continue to develop products to meet a variety of needs.

■Sanyo Chemical's main auxiliary agents for agricultural chemical formulations

Product name		Main component	Features
Disintegrating and spreading agent for granules (Dispersing agent and binding agent)	TOXANON GR-31A	Polycarboxylic acid type surfactant	In amounts of 1-3% by mass, it provides excellent disintegration and spreading properties to various inorganic carriers. It also has an excellent binder effect and increases the strength of the granules.
	SANMORIN OT-70N	Dioctyl sulfosuccinate	Among surfactants, it has the best penetration property and provides disintegration and spreading properties to granules
	NEWPOL PE Series	Polyoxyethylene polyoxypropylene block polymer	A high molecular weight nonionic surfactant with excellent dispersibility. The solid form is also used as a binding agent.
Emulsifier	NAROACTY CL Series	Polyoxyalkylene alkyl ether	A higher alcohol-based nonionic surfactant that exhibits excellent emulsifying properties and available in a wide range of HLB.
Spreading agent base (Imparts permeability and dispersibility)	SANNONIC Series	Polyoxyalkylene alkyl ether	A higher alcohol-based nonionic surfactant that exhibits excellent penetration properties.
	SANMORIN OT-70	Dioctyl sulfosuccinate	Gives the chemical the ability to spread to plants and pests.
Binding agent for granules	NEWPOL PP Series	Polypropylene Glycol	Depending on the molecular weight, some are water-soluble and some are non-water soluble. The higher the molecular weight, the higher the viscosity and the better the binder effect.
	PEG Series	Polyethylene Glycol	Depending on their molecular weight, they range from liquid to solid. They are all water soluble. The higher the molecular weight, the better the binder effect.

Please contact the sales representative of our company when handling our company's products. It is also necessary to read the "Safety Data Sheet" (SDS) in advance. It is the responsibility of the user to determine the suitability and safety for the intended use.