

Agrochemical Antifoam

Pesticides, fertilizers and other crop protection chemicals are applied to the crop using a variety of spraying methods. These chemicals are supplied to the farmer either in a liquid concentrate or a dry powder. The farmer will then carry out on farm mixing or diluting prior to spraying. Often two or more chemicals may be added together to be applied in one application. The farmer may also add a chemical adjuvant to the pesticide or fertilizer.



In the UK the Pesticides Safety Directorate (PSD) is an Executive Agency of the Department for Environment, Food and Rural Affairs (Defra) and defines an adjuvant as;

'A substance other than water, without significant pesticidal properties, which enhances or is intended to enhance the effectiveness of a pesticide when it has been added to that pesticide'

These adjuvants are controlled and approved by the PSD and include the following types

Extending agents

Wetting agents (For example Silwet L77 is approved)

Sticking agents

Fogging agents

However the PSD does not regulate other spray additives such as dye marker, carriers, anti-transparents or **anti-foaming** agents as adjuvants.

In the US antifoams must meet the criteria laid down by Environmental Protection Agency (EPA)

In mainland Europe there is currently no legislation concerning the use of antifoam for use with agrochemicals, however, some european customers prefer the product to meet the requirements of the EPA in the US.

THE Role of Antifoam

Minimising foam during the mixing and spraying process is important as foam will reduce the efficiency of both the chemical and spray equipment. Therefore silicone antifoams can play a significant role in overcoming the problem of foam and are used in two basic methods

1) Additives used at time of manufacture

In this process the antifoam is used to control foam during the manufacturing process and also help reduce foam during the dilution process on the farm.

2) Additives used on farm at the time of mixing

Here the antifoam is supplied direct to the farmer who will add to the mix during dilution with water

Silicone antifoam can be supplied in either liquid or powder form.

Traditional antifoam liquids can be used by the manufacturer when producing liquid concentrates and the farmer during on farm mixing.

Powders are used by the manufacturers of dry powdered products they are added to the manufactured product and will become active when water is added. They can also be sold to and used by the farmer during on farm mixing.

TPA 15 Powdered Antifoam

Benefits

TPA 15 is a dry powdered antifoam containing an active silicone content of 15%. It is particularly well suited for use in agrochemicals for the following reasons

- Totally water soluble (will not cause blockages in spray heads)
- Will not suffer from frost damage (robust for on farm storage)
- High active content
- Easy dispersal in aqueous systems (fast action)
- Free flowing powder (no clogging even in humid conditions)
- Easily incorporated into powdered systems

Application

Dilution rates typically;

- 0.1 – 0.5 % of active silicone content
- 0.3 – 1.5% by weight of the dry powder

For best results and maximum foam suppression add before mixing.

TPA-15 can be added directly to the foaming system, or pre-blended with other powdered ingredients.

When using with liquid concentrates TPA 15 can be added to the tank prior to mixing of water and chemical, this will prevent foam build up.

TPA 15 can also be used to, 'knock down' foam that has already been produced as a result of the mixing process.

Approvals

TPA 15 meets US EPA: 40 CFR 180.920 and 180.950 and 180.960

Liquid Antifoams

ACC Silicone Antifoams are available either as 100% active compounds or emulsions with silicone activity levels of 5% - 50%.

AF 1500LV:-100% compound particularly well suited to use within the manufacturing process.

Key Features

- 100% active compound
- Low viscosity 550 mPa.s
- Ideal for highly dispersed aqueous systems

Addition rates would vary depending upon the application, formulation and production methods, but a starting point would be 50ppm of active silicone.

AF 1316:-10% active antifoam particularly well suited to on farm use

Key Features

- 10% active silicone
- Easily dispersed in water
- Prevents foam build up
- Fast and efficient knock down of foam
- Wide pH range 1.5, pH <10

Addition rates would vary depending upon the application, formulation and production methods, but a starting point would be 50ppm of active silicone. AF 1316 can be pre-diluted with up to 50% water if required for faster dispersal.