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Standard Terminology Relating to Agricultural Tank Mix Adjuvants¹

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1. Scope

1.1 This terminology is used or is likely to be used in test methods, specifications, guides, and practices related to agricultural tank mix adjuvants.

1.2 These definitions are written to ensure that standards related to agricultural tank mix adjuvants are properly understood and interpreted.

2. Referenced Documents

2.1 ASTM Standards:

D 459 Terminology Relating to Soaps and Other Detergents²

D 483 Test Method for Unsulfonated Residue of Petroleum Plant Spray Oils³

D 609 Terminology Relating to Pesticides⁴

D 2140 Test Method for Carbon-Type Composition of Insulating Oils of Petroleum Origin⁵

3. Terminology

3.1 Terms and Definitions:

absorption—a process in which one material (the absorbent) takes in and retains another (the absorbate).

acidifier—a material that can be added to spray mixtures to lower the pH.

activator—a material that increases the biological efficacy of agrichemicals.

active ingredient—a component of the formulation that produces a specific effect for which the formulation is designed.

adjuvant—a material added to a tank mix to aid or modify the action of an agrichemical, or the physical characteristics of the mixture.

alkalinity agent—a material that can be added to the spray mixture to raise the pH.

amphoteric surfactant—a surface-active agent capable of forming, in aqueous solution, either surface-active anions or surface-active cations depending on the pH.

anionic surfactant—a surface-active agent in which the active portion of the molecule containing the lipophilic segment forms exclusively a negative ion (anion) when placed in aqueous solution.

antifoaming agent—a material used to inhibit or prevent the formation of foam.

attractant—a material that attracts specific pests.

buffer or buffering agent—a compound or mixture that, when contained in solution, causes the solution to resist change in pH. Each buffer has a characteristic limited range of pH over which it is effective.

canopy penetrating agent—an adjuvant that increases the penetration of the spray material into the crop canopy. See **deposition aid**.

cationic surfactant—a surface-active agent in which the active portion of the molecule containing the lipophilic segment forms exclusively a positive ion (cation) when placed in aqueous solution.

colorant—a material used to alter the color of the tank mix.

compatibility agent—a surface-active agent that allows simultaneous application of liquid fertilizer and agrichemical, or two or more agrichemical formulations, as a uniform tank mix, or improves the homogeneity of the mixture and the uniformity of the application.

crop oil concentrate—an emulsifiable petroleum oil-based product containing 15 to 20 % w/w surfactant and a minimum of 80 % w/w phyto bland oil.

crop oil (emulsifiable)—an emulsifiable petroleum oil-based product containing up to 5 % w/w surfactant and the remainder of a phyto bland oil.

crop oil (non-emulsifiable)—See **phyto bland oil**.

defoaming agent—a material that eliminates or suppresses foam in the spray tank

deposition aid—a material that improves the ability of agrichemical sprays to deposit on targeted surfaces.

dormant oil—a horticultural spray oil applied during the dormant phase of the targeted plant. (See **horticultural spray oil**.)

drift control agent—a material used in liquid spray mixtures to reduce spray drift.

¹ This terminology is under the jurisdiction of ASTM Committee E35 on Pesticides and Alternative Control Agents and are the direct responsibility of Subcommittee E35.22 on Pesticide Formulation and Application Systems.

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² *Annual Book of ASTM Standards*, Vol 15.04.

³ *Annual Book of ASTM Standards*, Vol 05.01.

⁴ *Annual Book of ASTM Standards*, Vol 11.05.

⁵ *Annual Book of ASTM Standards*, Vol 10.03.



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emulsifier—a surfactant that promotes the suspension of one immiscible liquid in another.

evaporation reduction agent—a material that reduces the evaporation rate of a spray mix during or after application, or both.

extender—a material that increases the effective life of an agrichemical after application.

foam suppressant—See **defoamer**.

foaming agent—a material that increases the volume or stability of the foam formed in a spray mixture.

foliar retention agent—a substance that extends the time an agrichemical remains in the targeted foliar zone.

horticultural mineral oil—An EPA registered pesticidal paraffinic spray oil for application on growing crops having a minimum unsulfonated residue of 92.0 % v/v by Test Method D 483. The distillation range should be narrow (80° F or less) for the 90 % minus 10 % distillation points by Test Method D 1160 at 10 mm Hg and complying with FDA 21CFR178.3620(c).

humectant—a material which increases the equilibrium water content and increases the drying time of an aqueous spray deposit.

modified vegetable oil—an oil, extracted from seeds, that has been chemically modified (for example, methylated).

modified vegetable oil concentrate—an emulsifiable, chemically modified vegetable oil product containing 5 to 20 % w/w surfactant and the remainder chemically modified vegetable oil.

naphtha-based oil—a petroleum oil containing a majority of the naphtha fraction.

nonionic surfactant—a surface-active agent having no ionizable polar end groups but comprised of hydrophilic and lipophilic segments.

oil—See **petroleum, vegetable, paraffinic**, and so forth.

paraffinic oil—a petroleum oil (derived from paraffin crude oil) whose paraffinic carbon type content is typically greater

than 60 %.

penetrant—a material that enhances the ability of an agrichemical to enter a substrate or penetrate a surface.

petroleum oil—oil derived from petroleum; contains a mixture of hydrocarbons that are broadly classified as paraffins, naphthenes, aromatics, or other unsaturates, or combination thereof.

phytobland oil—a highly refined paraffinic material with a minimum unsulfonated residue of 92 % v/v.

rainfastness agent—a material which improves rainfastness.

soil retention agent—a substance that increases the time and agrichemical remains in the targeted soil zone.

spreader—a material which increases the area that a droplet of a given volume of spray mixture will cover on a target.

spreader/sticker—a material that has the properties of both a spreader and a sticker.

sticker—a material that assists the spray deposit to adhere to the target and may be measured in terms of resistance to wind, water, mechanical action.

surface-active agent—a material that when added to a liquid medium modifies the properties of the medium at a surface or interface.

NOTE 1—**surface-active agent** is the general term which includes soluble detergents in liquid medium, dispersing agents, emulsifying agents, foaming agents, penetrating agents, and wetting agents.

surfactant—See **surface-active agent**.

vegetable oil—oil extracted from seeds; typically those of corn, cotton, peanut, rapeseed, sunflower, canola, or soybean.

vegetable oil concentrate—an emulsifiable vegetable oil product containing 5 to 20 % w/w surfactant and a minimum of 80 % w/w vegetable oil.

wetting agent—wetting agents can be considered synonymous with spreading agents in function.

D 2140

D 483

D 609

D 459

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