Association of American Plant Food Control Officials
Terms & Definitions Committee
2019 Winter Annual Agenda
Albuqurque, NM
February 11, 2019

Committee Objectives

- Review list of tentative terms and definitions previously brought before the committee and vote to retain them in tentative status, move to official status, or delete them.
- Review and discuss new agenda items brought before the committee

CALL TO ORDER

1. **Welcome, roll call of committee members and introduction of guests.** (5 minutes) Facilitator: Nick Young

2. **Agenda review and approval** (5 minutes) Chair

3. **Annual Meeting Report Review and Approval** (5 minutes) Chair

4. **Old Business - AAPFCO Membership Voting Items at Winter Annual 2019, Terms and Definitions can act on these depending on the outcome of the Membership vote.** Available to delete, stay tentative, official. (1 hour) Chair

   Terms will not be discussed if voted to official or deleted by the membership

   BSC-4 Available Silicon (Si) – Is the soluble portion of the total silicon in a fertilizer known as monosilicic acid [$Si(OH)_4$]. Membership vote to delete

   T-100 Humic Substances – Constituents of soil organic matter and the aquatic environment, consisting of complex heterogeneous mixtures of carbon-based substances formed by biochemical reactions during the decay and transformation of plant and microbial remains. They are primarily composed of three main fractions, called humic acids, fulvic acids, and humin, which are operationally defined by their solubility in dilute alkali and acid solutions. Sources of humic substances are commercially harvested from terrestrial deposits which include, but are not limited to, Leonardite, oxidized lignite, oxidized sub-bituminous coals, humalite, carbonaceous shales (including humic shale), peat, and sapropel. Membership vote to Official

   Cu-15 – Copper Lignosulfonate Is a complex of the copper (II) salt of lignosulfonic acid. (Official 2000)

   Fe-17 – Iron Lignosulfonate Is a complex of the iron (II) salt of lignosulfonic acid. (Official 2000)

   Mn-14 – Manganese Lignosulfonate Is a complex of the manganese (II) salt of lignosulfonic acid. (Official 2000)

Zn-17 – Zinc Lignosulfonate Is a complex of the zinc (II) salt of lignosulfonic acid. (Official 2000)

Ca-28 – Calcium Lignosulfonate – Is a complex of calcium (II) salt of lignosulfonic acid.

Terms which were voted as tentative by the membership, can be voted as official, stay tentative, or delete.

Mn-20 Manganese (II) Gluconate – is a manganese (II) ~~Chelate~~ complex of gluconic acid, and is commonly expressed as Mn gluconate.

Fe-25 Iron (II) Gluconate – is an iron(II) ~~Chelate~~ complex of gluconic acid, and is commonly expressed as Fe gluconate.

Zn-22 Zinc (II) Gluconate – is a zinc (II) ~~Chelate~~ complex of gluconic acid, and is commonly expressed as Zn gluconate.

S-13# - Elemental Sulfur(S) – Sulfur existing in its elemental form. It can be sourced from the refining process of crude oil or mined from natural sources. Elemental sulfur is a source of slow release sulfur. Particles of less than 100µm in size have been shown to oxidize to sulfur over a growing season to become plant available.

T - Free Sulfur – Represents the elemental sulfur in a sulfur sub-guarantee.

T- Combined Sulfur – refers to sulfur combined with other elements, primarily by ionic bonds. Combined sulfur can be present in many forms, the most common is sulfate sulfur (SO_4^{2-}). This is the plant available form of sulfur derived from salts containing the sulfate ion SO_4^{2-} and positively charged ions such as those of ammonium and magnesium. Many other forms of combined sulfur can and do exist.

Maleic-Itaconic Copolymer, Calcium Salt – A substance composed of a partial calcium salt of maleic-itaconic copolymer that can be applied to granular urea fertilizers or mixed with liquid ammoniacal nitrogen/urea fertilizers.

Maleic-Itaconic Copolymer, Sodium Salt – A substance composed of a partial sodium salt of maleic-itaconic copolymer that can be applied to granular phosphate fertilizers.

Maleic-Itaconic Copolymer, Ammonium Salt – A substance composed of a partial ammonium salt of maleic-itaconic copolymer that can be mixed with liquid phosphate fertilizers.

T- Endomycorrhizal fungal propagules– are the structures of endomycorrhizal fungi that can generate another endomycorrhizal fungal individual. These structures include spores and root fragments colonized by arbuscular mycorrhizal fungi.

T-? Endomycorrhizal fungal propagules– are the structures of endomycorrhizal fungi that are capable of forming a symbiotic association with plant roots. These structures are endomycorrhizal spores and root fragments colonized by endomycorrhizal fungi. From working group 12-11-18

T- Mycorrhizal fungi – are fungi that form symbiotic associations between the fungal mycelium and the roots of vascular plants and may act as an extension of the plant root system.

T-? Mycorrhizal fungi – are fungi that are capable of forming mutually beneficial symbiotic associations between the fungal mycelium and the roots of vascular plants. These fungi include endomycorrhizal fungi and ectomycorrhizal fungi. From working group 12-11-18

T- Ectomycorrhizal fungi – are fungi that colonize the outer root zone of woody plants (e.g. conifers, oaks, willows, and eucalypts) without penetrating the root cell and form associations with plants that are characterized by intercellular hyphae. Only the numbers of spores are allowed in product guarantees.

T–? Ectomycorrhizal fungal propagule – is a structure of ectomycorrhizal fungi that is capable of forming a symbiotic association with plant roots. These structures are spores of ectomycorrhizal fungi. From working group 12-11-18

T- Beneficial bacteria – are bacteria that promote plant growth, either directly, by colonizing roots and fixing nitrogen, or indirectly, by increasing the availability of nutrients, such as phosphorus, from the soil. Beneficial bacteria are guaranteed by genus and species or strain and an amount, designated as colony-forming units per gram (for dry products) or milliliter (for liquid products).

T-? Beneficial bacteria – are bacteria that may enhance plant growth and yield, either directly by colonizing roots and fixing nitrogen, or indirectly, by increasing the availability of nutrients from the soil. Beneficial bacteria may also help plants tolerate abiotic stress and/or help with plant nutrient uptake. Beneficial bacteria are expressed as genus and species, and, if applicable strain, and guaranteed by an amount, designated as colony-forming units per gram (for dry products) or milliliter (for liquid products). From working group 12-11-18

T- Colony-forming unit (CFU) – is a unit used to quantify the viable cells of bacteria, or yeast in a sample. It is a measure of the number of individual colonies formed when the inoculum is plated using microbiological culture methods appropriate for that organism.

T-? Colony-forming unit (CFU) – is a unit used to quantify the viable cells of bacteria and culturable fungi in a sample. It is a measure of the number of individual colonies formed when the inoculum is plated using microbiological culture methods appropriate for that organism. From working group 12-11-18

T- Mycorrhiza (plural mycorrhizae) – is a term used to describe the symbiotic association between a mycorrhizal fungi and a plant root. Working Group Recommendation to delete 12-11-18

T- Endomycorrhizal fungi [also Arbuscular Mycorrhizal Fungi (AMF)] – any mycorrhizal fungi that form vesicles and Arbuscules in root cells. Also - vesicular arbuscular mycorrhizae (VAM)] are members of the phylum Glomeromycota, one the largest groups of endomycorrhizal fungi. Only the numbers of spores or propagules are allowed in product guarantees. Working Group Recommendation to delete 12-11-18

T- Endomycorrhiza(e) - A mycorrhizal association with intracellular penetration of the host root cortical cells by the fungus as well as outward extension into the surrounding soil. Working Group Recommendation to delete 12-11-18

T- Ectomycorrhiza(e) - Fungal associations characterized by two structural components between the mycelium and the plant root; a sheath or mantle of fungal tissue which encloses a plant root, a intricate inward growth of hyphae between the epidermal and cortical cells called the Hartig net. Working Group Recommendation to delete 12-11-18

P- Hydroxylapatite - is a naturally-formed phosphate rock ~~mineral~~ with the formula $Ca_5(PO_4)_3(OH)$. The Fluorine content is less than 1%.

Potassium Hydrogen Phosphate Dihydrate – Inorganic water soluble fertilizer; Double salt of Monopotassium Phosphate and Dipotassium Phosphate. It shall contain forty-two (42%) to forty-five (45%) available phosphate and forty-two (42%) to forty-five (45%) soluble potash. (CAS Number 66922-99-4)

Pronitridine – is a water-soluble reaction product of urea, ammonium hydroxide, N-cyanoguanidine, and formaldehyde. It is a nitrification inhibitor (CAS Number 1373256-33-7)

Cu-12 Copper Glucoheptonate – is a copper (II) ~~chelate~~ complex of glucoheptinic acid and is commonly expressed as Cu Glucoheptonate.

Fe-14 Iron Glucoheptonate – is an iron (III) ~~chelate~~ complex of glucoheptinic acid and is commonly expressed as Fe Glucoheptonate.

Mn-11 Manganese Glucoheptonate – is a manganese (II) ~~chelate~~ complex of glucoheptinic acid and is commonly expressed as Mn Glucoheptonate.

Zn-11 Zinc Glucoheptonate – is a zinc (II) ~~chelate~~ complex of glucoheptinic acid and is commonly expressed as Zn Glucoheptonate.

5. **Some more Old Business** –

DMP – Teressa Tubia, BASF (Submitted 4/4/2017, Application on AAPFCO Secure Site)

DMP (3,4-dimethylpyrazole) – is a nitrification inhibitor.

Tabled at Winter Annual 2018 to be reviewed by Lab Services

Salt Out Temperature – Michael Hojjatie, Tessenderlo Kerley (1/9/18, Discussion)

Not a formal request at this time, Discussion

Salt Out Temperature (SOT) – The temperature of a liquid fertilizer at which the salt content of the liquid exceeds its solubility. At this temperature, a solid phase begins to form, resulting in a mixture of solid particles and solution. The preferred test for Salt Out Temperature (SOT) determination is by first forming crystals by cooling the solution, and then determining the temperature at which all the crystals re-dissolve into solution.

Tabled at Winter Annual 2018

Duromide – Ryan Potter, Koch (6/4/18, AAPFCO Secure site)

Duromide – Reaction product of N-(n-butyl)thiophosphoric triamide, urea and formaldehyde, that acts as a urease inhibitor (CAS Number 2093385-47-6).

Tabled at Summer Annual 2018

Polyacrylamide – James McFadden, Central Garden & Pet (6/6/18, AAPFCO Secure site)

Polyacrylamide – A water-soluble (linear polymer) substance used for soil amendment, wherein the substance is copolymerized and applied in dry granular or emulsion forms to soils. The substance is characteristically anionic, with charge density of 5-40%, a molecular weight range of 8-20 mg/mol, and is made up of variable ratios of acrylamide and acrylic acid monomer. Usage can reduce soil-surface sealing and soil erosion due to irrigation or rain events. As a result, the substance retains mineral nutrients for plant-uptake availability, and improves the efficiency of applied mineral nutrients e.g. Potassium, Calcium, Magnesium, Nitrogen and Phosphorus.

Tabled at Summer Annual 2018

Volcanic Ash (Dacitic) – Anne-Laure Guihur, TSG (7-6-18, AAPFCO Secure site)

Volcanic Ash (Dacitic) – Composed of small (< 2 mm) fragments of pumice and other mineral matter deposited during an explosive volcanic eruption, with an overall composition equivalent to dacite, a high-silica volcanic rock formed from crystallized lava. Deposits also may include some larger fragments. It can be used as a source of <u>primary nutrients (such as Potassium)</u> secondary nutrients (such as Calcium and Magnesium), ~~and~~ micronutrient<u>s</u> (such as Iron), and <u>beneficial substances (such as Silicon), and</u> as a soil conditioner.

Tabled at Summer Annual 2018

6. **<u>New Business</u>** –

Ammonium Bicarbonate – Jeremy Roland, Bion Environmental Technologies (11-29-18, AAPFCO Secure Site)

Ammonium Bicarbonate – The bicarbonate salt of the ammonium ion with the chemical formula of (NH4)HCO3. CAS# 1066-33-7. In its solid form ammonium bicarbonate is water soluble.

Uncalcined Diatomaceous Earth (DE) – Mary Provance-Bowley, Dr. MPB Consulting (12-4-18, AAPFCO Secure Site)

Uncalcined Diatomaceous Earth (DE) – containing amorphous silicon dioxide of the Melosira Granulata species is a natural source of soluble silicon, Ca,Mg, and Fe.

Guayule Extract – Michael Kirksey, Beem Biologics (12-12-18, AAPFCO Web Site)

Guayule Extract– an aqueous extraction from the guayule shrub (parthenium argentatum) which enhances nutrient uptake and plant vigor.

---

7. **<u>Next Steps</u> - Assignments and Agenda Items for next meeting**