



Liquid Organic* Humate

TECHNICAL GUIDE



**A SPECIALISED SOIL TREATMENT FOR IMPROVING SOIL
STRUCTURE AND PLANT NUTRIENT AVAILABILITY**



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Seasol[®]
a better way to grow



Liquid Organic* Humate

TECHNICAL INFORMATION

OVERVIEW

Liquid Organic* Humate is a highly concentrated 100% organic* soil treatment manufactured in Australia. Humate assists the development of improved soil structure, soil moisture retention and plant nutrient availability. Liquid Organic* Humate is ideal for use after soil cultivation or seed-bed preparation.



Liquid Humate Extract



ABOUT LIQUID HUMATE

Liquid Humate is an organic* carbon extracted from the Lignite seam of coal deposits. Sources are carefully selected from specific mines in Australia and overseas.

When Liquid Humate is applied to the soil it helps release bound nutrients, providing on going benefits to plants. In sandy soils it also helps reduce nutrient leaching. Humate also assists the development of improved friability in clay soils and soil moisture retention in sandy soils.

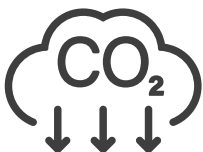
FEATURES AND BENEFITS



Improves soil structure and moisture retention



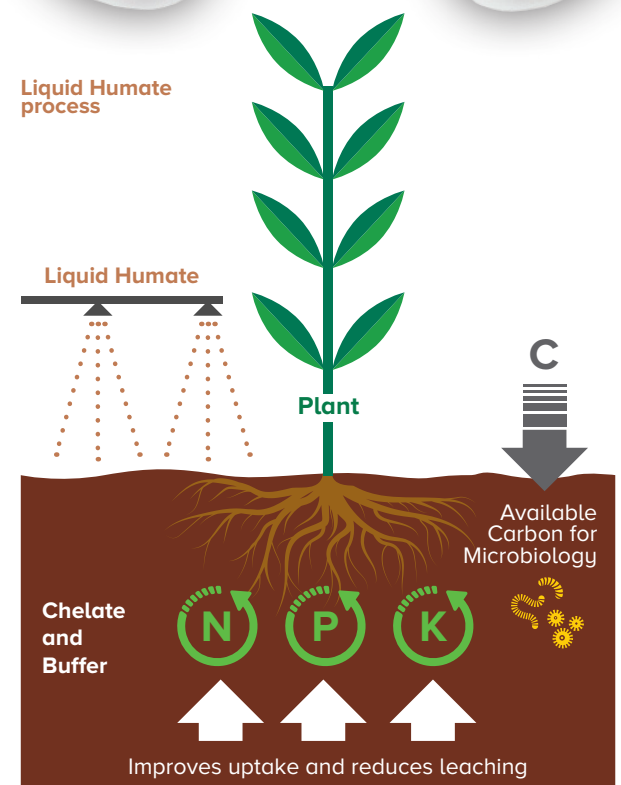
Stimulates soil microbial activity



Improves soil carbon levels



Increases plant nutrient uptake and reduces leaching



i An organic* carbon extracted from the Lignite seam of coal deposits. Sources are carefully selected from specific mines in Australia and overseas.



LIQUID ORGANIC* HUMATE IMPROVES SOIL PROPERTIES

Liquid Humate is an extract rich in organic* carbon content and composed of accessible carbon in the forms of humic and fulvic acids. Liquid Organic* Humate has a 21% total solids content and 2.4% (w/v) Potassium (*Typical Analysis April 2017*). The humic and fulvic acids are biologically active and accessible to soil microbes for decomposition. Liquid Organic* Humate is made from a dried Humic and Fulvic extract of lignite producing a refined liquid organic* humate product and filtered to 150micron for agricultural use.

Humic substances such as humic and fulvic acids are natural organic* molecules originating from the biological and chemical transformations of plant matter that eventually decomposed to form peat (*Canellas et al 2015*). The carbon in these forms are available to the soil microbiology for processing. Other fractions of the Soil Organic* Matter are resistant to decomposing and slower to enter the soil carbon cycle.

Humic substances can be extracted by liquefying humate in lignite using chemical hydrolysis and acid and alkaline processing. Humic acids are complex and heterogenous in chemical structure, have amphiphilic (having both hydrophilic and hydrophobic parts) properties, are linked by intramolecular associations which makes their precise characterisation difficult despite possessing a distinguishable carbon backbone.

Humic acids are useful in agriculture for their soil improving properties and accessible carbon (*Canellas et al 2015; Jindo et al 2020; Zanin et al 2019*). Liquefied humic substances are generally applied as a soil drench to improve:

- **Soil Structure:** The addition of humic acids to soils triggers the formation of clay-humic complexes which increase soil aggregation. Improved soil aggregation results in improved structural stability and soil porosity, increased water holding capacity, less soil compaction and improved soil aeration. Soil treated with Humic acids have improved soil aggregate stability after successive wetting and drying cycles.

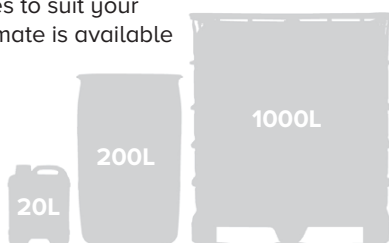
- **Buffering capacity:** Humic acids are rich in reactive acid-functional groups which provide an inherent buffering capacity. Humic acids buffer over a wide pH range which is useful as many fertilisers acidify the soil.
- **Chelation:** Humic substances have chelation properties. The abundance of functional groups in the complex humic substances allows them to have positive and negative charges. In the soil these charges attract both cations and anions making more of these ions available to the plant. The aliphatic (open chain) nature enables humic acids to reduce nutrient leaching, enhances fertiliser efficiency and prolongs the period that the bound nutrients are available to the plant.
- **Microbial activity and soil carbon:** Humic acids are a source of food for various micro organisms and can increase microbial activity, abundance and biomass. Lower molecular weight fractions of humic acids tend to be the most biologically active. Increases in microbe activity enhances the mineralization of soil organic* matter, thus increasing the pool of nutrients available to plants.

Humic acids have been found to be more effective under soil conditions of poor fertility and low organic* matter content. Humic acids are synergistic with agricultural products that increase plant root growth because of improved nutrient availability and access to plants.



AVAILABLE IN 3 SIZES

Whatever your requirements, we now have sizes to suit your needs. Liquid Humate is available in 20L, 200L & 1000L quantities.



Thinking roots?
Think Seasol.





Liquid Organic* Humate

A SPECIALISED SOIL TREATMENT FOR IMPROVING SOIL STRUCTURE AND PLANT NUTRIENT AVAILABILITY



INSTRUCTIONS FOR USE

1. Liquid Organic* Humate is intended for application to soil. It can be injected into the irrigation system (Fertigated) or applied as a soil drench, spray or furrow injection. The product can be applied before, during or after light to moderate rainfall. **2. Liquid Organic* Humate** must be diluted with water. **3.** Shake or agitate before use. Maintain agitation during dilution & application if possible. Re-agitate if the product is left standing for an extended period of time.

APPLICATION GUIDELINES

Category	Crop	Rate	Application / Critical Comments
Drip Irrigation	All	5-10 L/Ha or 0.5-1ml per sq mtr of intended treatment area	Apply product regularly during the irrigation season, especially on sandy soils.
Under tree sprinkler			
Overhead irrigation.	All		Apply regularly during the growing season, especially on sandy soils. If applying over crops, use sufficient dilution to wash any visible residue from the plant or apply a follow- up watering.
Boomspray, Side nozzle etc	All	5-10 L/Ha	Preferably apply to soil. If application must occur over crops (e.g. turf and pasture) apply immediately before rainfall or irrigation.
In-Furrow Banding	All	1-2 ml per sq mtr of intended treatment area or per 10 mtr of linear row treated.	The linear metre rate for in-furrow application assumes a 10cm wide band of application or treatment.
Street tree watering, Garden beds etc	Water Cart, Watering Can, Backpack, Hand sprayer etc	3-5ml per litre of water.	When applying take care to avoid staining flowers. If this cannot be avoided follow up with an application of clean water.
Light Soils	All	10 L/Ha or 1ml per sq mtr	Apply every 2-4 weeks via irrigation or fertigation
Heavy Soils	All	5-10 L/Ha or 0.5-1.0ml per sq mtr	

GENERAL INSTRUCTIONS

Helpful Hint: Liquid Organic* Humate is dark in colour and may stain surfaces (including foliage, fruit and flowers) should it be sprayed over such surfaces. Spaying with clean water immediately after such an event will remove the product.

Boomspray application: Boomsprays and similar devices can be used to apply Liquid Organic* Humate. Use adequate water to ensure good coverage of the soil. We suggest a minimum of 100 L/Ha. For best results, use the product on its own. Do not mix with chemicals. **If applying with liquid fertiliser products we suggest doing a jar test before every application to check compatibility.**

Foliar Spraying: Liquid Organic* Humate is NOT intended to be applied to foliage, fruit and flowers. Apply the product as soon as possible after mixing in the spray tank. Maintain agitation in spray tank if possible. Liquid Organic* Humate can be used as a foliar application or applied directly to the soil and can be applied with boom sprays, air blast sprays, drip systems, travelling irrigators, centre pivots and by aerial application.

Fertigation: Agitate the product in the fertigation tank before and during application if possible. Rinse any residue from tank after application. For best results use the product on its own. Liquid Organic* Humate can be applied with other liquid products from Seasol.

STORAGE AND HANDLING

Not to be kept for prolonged periods in hot conditions (>30°C) or in direct sunlight. Always use safe work practices for lifting and handling drums. Once diluted, the product should be applied within 24 hours. Agitate the product prior to using and re-agitate if the product is left standing for an extended period of time.

SAFETY DIRECTIONS

Not to be taken. Keep out of reach from children. May irritate the skin and eyes. Avoid inhalation. Use in a well-ventilated space. Wash hands after use. Wash all edible plants before eating. If splashed, wash off with water. If swallowed or irritation persists, seek prompt medical advice. Additional information is listed in the Safety Data Sheet.

CONDITIONS OF SALE

This product must be used strictly in accordance to the directions. The efficacy of the product may be influenced by environmental conditions and application procedures and no warranty, express or implied is offered.

**This product is allowable for use on farms (or in facilities) certified to the Australian Certified Organic* Standard.*



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