



New lawns

Flower meadows

Greenhouse soils



Vegetable cultures

Tree nursery

Flowers and herbaceous perennials

USAGE OF POWHUMUS SPECTRUM OF USAGE:	DOSAGE RATE PER APPLICATION	Total amount per growing season (kg/ha)	Number of applications during the season and timing of application
HORTICULTURE (DRIP IRRIGATION)	Low "Humus" content: higher rate Higher "Humus" content: lower rate		
Greenhouses (Vegetables, Flowers etc.)	300-600g/ha	6-10kg/ha	Every week
Plastic tunnels	400-700g/ha	6-10kg/ha	Every week
Open field (Vegetables, Potatoes etc.)	300-800g/ha	4-8kg/ha	Every week
Fruit trees (Apples, Citrus, Bananas etc.)	500-1000g/ha	7-15kg/ha	Every two weeks, during the growing season
AGRICULTURE (SPRINKLER AND PIVOT SYSTEMS)			
Cereal, Beans, Rice etc.	1-3kg/ha (max.150g/1000L water)	4-5kg/ha	3-5 applic./season, before emergence till flowering
Fodder plants, Alfalfa etc.	1-4kg/ha (max.150g/1000L water)	4-8kg/ha+year	After each cut
Potato, Sugar Beets etc.	1-5kg/ha (max.150g/1000L water)	4-10kg/ha	Every 2-3 weeks, first 10-14 days after planting
LANDSCAPING			
Turf, Lawn, Sport fields (Sprinkler-system)	1.5-3kg/ha (max.150g/1000L water)	10-15kg/ha +year	After each cut during the growing season
Trees, Shrubs (drip irrigation)	3-5g/tree		Every two weeks during the growing season
FOLIAR APPLICATION			
Agriculture, Horticulture, Landscaping	10-15g/100L (max. 0.015%) per spray solution		In combination with every foliar fertiliser or pesticide application. Do not use fertilisers with a pH level lower than 4
ROOT DIPPING			
	30g/20L per root dipping solution		Dip the roots into the solution prior planting
SEED TREATMENT (AGRICULTURAL SEEDS)			
	200g/100KG small seeds 125g/100KG big seeds		Blend it with the seeds Blend it with the seeds
SPECIAL USAGE FOR NEW SPORT FIELDS, AND GOLF COURSES			
Seed treatment	25g/10L water		Soak the turf seeds for 10-16 hours before seeding
Seed bed treatment (dry applic.)	50-100g/100m ²	5-10kg/ha	Prior planting the grass seed, combined with granular fertiliser
Seed bed treatment (Liquid applic.)	5-10KG/1000L water per ha	5kg/ha	One application prior seeding
Hydroseeding	200-300g/100L of water		Mix it to the Hydroseeder tank and add other ingredients while stirring.
Overhead-irrigation	1-3kg/ha (max.150g/1000L water) 3-6kg/ha (max.150g/1000L water)	5-10kg/ha 10-15kg/ha	Every 7 days in the first year and after each cut in the following years
ENRICHMENT OF COMPOST/SUBSTRAT			
Blending with compost and substrat	800-1500g/cubic meter		Mix Powhumus uniformly with the compost before the mixture is incorporated into the soil.
PRODUCTION OF COMPOST/SUBSTRAT			
Processing of compost and substrat	500-800g/cubic meter		2-3 applications: 2 at the early stage of processing, one in the mid-time of processing, (speeds up the decomposition and fixes Ammonia ions)
ADDITIVE TO GRANULATED, BASIC fertilisers			
	3-5kg/100kg Nitrogen(N)	2-10kg/ha	Blend dry Powhumus with granulated fertiliser prior application

POWHUMUS®85 WSP (water-soluble micro-granulate) contains 85% Humic Acids extracted from highly oxidized decomposed organic matter (Leonardite), which was formed during the humification of the organic matter (over 70 Mio. years) and is mined in an area near Cologne in Germany. It is one of the best Leonardite sources with the highest natural content of Humic Acids. (The tradename of this product is **PERLHUMUS®**, which is registered at **OMRI Organic Material Review Institute USA, HGH 9509**.)

POWHUMUS® is a completely natural plant growth stimulant. Due to its water-soluble, granular formulation, **POWHUMUS®** can be dissolved in water for direct soil application by means of different irrigation and spray systems and also for foliar application. It can be mixed with foliar fertilizers, biological or enzymatic pesticides to improve the uptake of nutrient ions and other active ingredients. Further on it can be blended with conventional fertilizers like Urea, DAP and Superphosphat to increase the efficiency of these fertilizers.

HOW DOES POWHUMUS® 85 WSP WORK?

- Humic and fulvic acids are essentially for improving the soil condition and are natural plant growth stimulants helping to increase root and plant growth, yield and quality of a wide variety of crops.
- Promotes plant growth and increases soil fertility.
- Increases the permeability of plant membranes, enhancing the uptake of nutrients.
- Stimulates root formation and growth, especially vertically, and enables better uptake of nutrients.
- pH of soil is buffered towards neutral as humic acids are amphoteric substances reacting with acid or alkaline soils.
- Improves the development of good soil structure and improves aeration of soils. It reduces the dredging of waste-water lagoons.
- Increases the cation exchange (CEC) and water holding capacity of soils, and thus helps to reduce soil erosion by strengthening the cohesive forces of very fine soil particles.
- Helps to balance the nitrogen uptake by plants and increases soil nitrogen utilization efficiency. It encourages the uptake of potassium, calcium, magnesium and phosphorus. Phosphorus, which can be fixed or bonded to organic matter and becomes unavailable, will be mobilized. This makes the phosphate ions more rapidly available to the plants root system.
- Chelates existing essential nutrients, especially iron ions are set free for plant absorption to aid in correcting Iron- chlorosis.
- Increases fruit and crop quality (sugar ratio/ brix level, taste, hardness, appearance, durability and weight)
- Helps to stimulate the plant metabolic system inside the living cells.
- Releases various types of auxins responsible for plant growth
- Stimulates beneficial microbial activity in the soil.
- Improves seed germination rate and germination time, guarantees simultaneous sprouting and increases the survival rate of plants.
- Helps plants to overcome drought, frost, water, pesticide stress.
- Stimulates plant enzymes and increases their production.
- Powhumus prevents in sandy soils the leaching of pesticides into the groundwater. It speeds-up de-contamination of toxic compounds in the soil like herbicides and pesticides.
- It balances the nutrient supply of plants and reduces the negative effects of over-fertilization. It minimizes the risk of leaching nitrate into the underground water zone.
- Helps to open the stomatas of leaves and promotes the diffusion of foliar nutrient ions and systemic pesticides into the plants.
- Enhances plant's natural resistance against diseases and pests.

HOW TO APPLY POWHUMUS?

It is recommended to apply Powhumus always as a solution. Take the recommended dosage rate of Powhumus for the treated area (1 part) and dissolve it in 10 parts of water in a separate cup; add this solution into the spray tank or to the irrigation system (to the water tank or the liquid fertilizer tank). Only for the dry seed treatment and as additive to granulated fertilizer Powhumus should be applied in the dry micro-granulated form. Powhumus is totally water-soluble, the Powhumus solution (10%) is miscible with most of the commonly used water-soluble fertilizers and pesticides, nevertheless we recommend a jar test before using Powhumus the first time in combination with fertilizers or pesticides. Worldwide experiences have shown that better results can be achieved by applying Powhumus in smaller dosage rates but high frequency, than with higher dosage rates but less application frequency. As Powhumus is a natural, non-toxic product, there is no risk in overdosis. The exceed of the given dosage rate is not a problem. Further results have demonstrated that by using Powhumus, systemic pesticides can be reduced up to 25% and the total annual amount of nitrogen up to 30%. Thus the economical and ecological benefits of using Powhumus can be increased on the basis of own farm experiences.

Composition (w/w):
(Average specification based on 100 different charges of Leonardite)

Dry matter	: 86,0 %	Total organic matter	: 82,0 %
Moisture	: 14,0 %	Total organic carbon	: 43,0 %
Humic Acids	: 85,0 %	C/N ratio	: 52:1
Potassium (K2O)	: 12,0 %	pH	: 9-10
Iron (Fe)	: 1,0 %	Solubility	: 99,8 %
Organic Nitrogen	: 0,8 %	Bulk density	: 0,60g/cm ³
Others	: 1,1 %*	Toxicity	: non

*Others: approx. 70 natural micro- and trace-elements, phyto-hormones, auxine (more than 38 different bio-stimulants)

General use recommendations

Powhumus can be applied to all agricultural and horticultural crops and plants, to turf and landscaping areas and to fruit and forest areas, flower beds and shrubs. It is also recommended to blend Powhumus with compost, granulated or water-soluble fertilizers. Powhumus is officially recommended as plant growth stimulant for organic farming. It is listed in **German Federal Biological Research Center for Agriculture and Forestry. ID-Number LS 005126-00-00.**

Compatibility:

Powhumus is compatible with most conventional fertilizers and biological or enzymatic solutions and systemic pesticides. It is not compatible with calcium nitrate. To mix with Ammoniumphosphat, cut with water. As a principle you should check solutions with a pH less than 5 in small amounts, before applying for the first time.

Storage conditions:

Store Powhumus in its original package in a dry cool place. Keep the package closed separate from food products. Keep out of reach of children and pets. Protect from direct sunlight and do not expose to high temperatures. Keeping it dry and cool, it retains its physical, chemical and biological characteristics for at least 2 years under normal storage conditions and package.

NOT A PLANT FOOD INGREDIENT PRODUCT CAUTION:
KEEP OUT OF REACH OF CHILDREN: HARMFUL IF SWALLOWED: AVOID CONTACT WITH SKIN; EYES OR CLOTHING:
In case of contact immediately flush skin, eyes or clothing with plenty of water.

CONDITIONS OF SALE:
BUYER ASSUMES ALL RESPONSIBILITY FOR USE; STORAGE; HANDLING AND DISPOSAL OF THIS PRODUCT; WHEN NOT IN ACCORDANCE WITH LABEL DIRECTIONS.

net weight : 1000 gr
gross weight: 1110 gr
filing date : see below bottom



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