

Technical Bulletin M2127

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Essential Plus Product Specifications & MSDS

No. 92915
Essential Plus, 2-1/2 Gallon



Essential Plus

Bio-stimulant & Soil Conditioner. Essential Plus is a concentrated source of rich, natural organic materials which improve soil structure and plant health. A natural rooting hormone with kelp extract stimulates plant growth and rooting while the vitamins, sugars and amino acids found in Essential Plus make plants strong and healthy. Humic acid is included to improve soil quality. Safe for all varieties of annuals, perennials, herbs and vegetables.

Contains Non-Plant Food Ingredients:

Humic Acid	7%
Cellulose Fiber	10%
Kelp Extract	0.1%
Carbohydrates	2%
Natural Wetting Agent	0.0025%
Lignin	1.2%
Mono / Disaccharides	3%
Ash Content	2%
Total Amino Acid	2.75%
L-Glycine	0.53%
L-Glutamic Acid	0.39%
L-Aspartic Acid	0.35%
L-Alanine	0.26%
L-Proline	0.19%
L-Leucine	0.17%
L-Lysine	0.16%
L-Serine	0.16%
L-Arginine	0.12%
L-Threonine	0.10%
L-Valine	0.10%
L-Phenylalanine	0.08%
L-Isoleucine	0.07%
L-Histidine	0.04%
L-Methionine	0.02%
L-Tyrosine	0.01%
L-Carnosine	Trace
L-Citrulline	Trace
L-Cystine	Trace
L-Beta-Alanine	Trace
L-Taurine	Trace
Riboflavin (B2).	13.17 mg/lb
Vitamin (B6)	0.314%
Gibberellic Acid	0.001%
Natural Rooting Substance	0.01%

Derived From:

Humic Acid (Potassium Humate), Plant Extracts, Simple and Complex Sugars, North Atlantic Kelp Extract, Hydrolyzed Organic Proteins, Natural Wetting Agent and Carbohydrates

Weight per gallon: 8.99 lbs.

Product Description:

Essential Plus is a 100% natural organic product derived from plant and vegetative products that provides a rich carbon source of organic matter. Essential Plus is pasteurized and homogenized to be a homogeneous solution. Each ingredient has been selected to provide all the various stages of organic decomposition (from fast decomposers to more complex forms of carbon requiring complex decomposition). Essential Plus contains 20 L-amino acids that promote nutrient absorption, and stimulate the plant's essential metabolic activities. It also becomes an available food source for soil microorganisms. High concentrations of active, soluble humic acid, humus and cellulose fiber will help to replenish soils that have been depleted of organic matter. Essential Plus will improve poor or subsoil conditions and compaction. Essential Plus will improve plant physiology with sugars, 20 amino acids and nutrients that are not available in N-P-K fertilizers.

Food Source for Microbial Activity:

Beneficial microorganisms need organic matter as a food source to survive and increase their population. Essential Plus has a high carbon content that slowly decomposes, restoring organic matter back into the soil. This is especially important in overworked urban settings such as golf courses, estates, corporate sites, and other manicured landscape settings.

Enhances Plant Physiology:

Turf, trees, ornamentals, and nursery and greenhouse stock need more than just N-P-K fertilizers to remain in superior health.

Tech Support 800-430-5566

If you need more information or would like advice from an experienced professional, call our Technical Support team.

Sales 800-647-5368

Our sales department will gladly fax you an order form, update you on pricing, or take your order over the phone.

Online www.forestry-suppliers.com

For credit card and open account orders, visit our web site to place your order.



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Essential contains vitamins, enzymes, carbohydrates, sugars, amino acids and root stimulators (from kelp). These nutrients are absorbed and utilized by the plant to enhance growth, vitality and stress resistance. Essential contains natural plant growth regulators that encourage cell division, root development and seed germination.

Rejuvenates Soil Structure:

Essential contains high percentages of active, soluble humates, plant extracts, cellulose fiber and a natural wetting agent which are critical to maintain healthy soil. By adding organic matter back into soils that have been depleted, even the most difficult soil conditions can be improved. These ingredients also reduce compaction and improve cation exchange capacities.

Application Recommendations:

Essential is 100% soluble for spray applications foliar feeding, soil injection, or use in irrigation systems. Essential may be mixed with other technical materials and sprayed in one application, saving labor. Essential can be used on all types of turf grass, shrubs, trees, evergreens and flowering plants, as well as organically grown food crops. Registered with NOFA-NY as 100% certified organic.

Application Recommendations Per 1,000 Square Feet

Plant Material	Normal Maint.	Sandy Soil	Clay Soil	Newly Seeded/ Transplants
Turf Cool Season	3 oz.	5 oz.	5 oz.	4 oz.
Turf Warm Season or Transitional	4 oz.	6 oz.	6 oz.	5 oz.
Foliage Plants	3 oz.	4 oz.	5 oz.	4 oz.
Flowering & Bedding Plants	3 oz.	4 oz.	5 oz.	4 oz.

Suggested Uses:

USGA Spec Tees & Greens: Essential should be part of the regular maintenance program to increase the organic matter

content in soils and feed beneficial soil microorganisms. Essential should be used on newly built tees and greens to increase the cation exchange capacity. Regular use of Essential will improve the ability of sandy soils to hold nutrients. Essential will improve seed germination and stimulate root growth. Mix 32 oz. in 100 gallons of water for normal maintenance. Mix 1 gallon in 100 gallons of water for transplants. Spoon feed every four to six weeks.

Clay Soils: Calcareous soils often lead to compaction and nutrient availability problems because of the lack of organic matter. Fertilizers cannot correct the problem and often lead to the build up of salts. Essential's high concentration of organic matter and natural wetting agent can penetrate the encrusted soil and begin restoration. Apply Essential throughout the entire growing season. Immediately apply after aeration has been completed or top dressing has been applied.

Lawn Care and Landscaping: Essential should be used in conjunction with a regular fertilization program or as a stand alone product when a natural organic program is required. Essential should be applied to all renovated areas and construction sites where soil has been removed or adequate top soil is lacking.

Tree Care: Established trees and ornamentals in urban settings are often deprived of renewable organic matter during the course of grooming. Essential can be used for year round tree care to enhance liquid and soluble fertilizer programs. Essential should be used in the summer to reduce stress problems. All newly transplanted trees and ornamentals should have Essential applied. Transplants need additional care to promote root development and enhance the uptake of usable nutrients and storage of carbohydrates. Essential will decrease transplant shock and stimulate root growth. In excavation areas and construction sites, Essential should be applied at double the normal maintenance rate. Renovation problems such as compaction and lack of

microbial activity that result in plant stress and death can be avoided with Essential.

Tree Care

Diameter at breast height (DBH)	2 oz. of Essential per inch of trunk diameter
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Nurseries And Greenhouses:

Field Grown Nursery Stock: Essential can be fed foliarly and through the soil throughout the entire growing season. For container grown materials, apply monthly. After transplanting or root pruning, apply by saturation.

Transplants

After planting or root pruning apply:	1:100 of Essential in water until saturation
Bare root tree planting:	Soak in 2% solution prior to planting

Flowering Plants, Bedding And Foliage

Plants: Since most soilless mixes contain little organic matter, it is important to add organic matter to improve your plant's health. Essential will hold nutrients in soilless mixes longer, reduce leaching and salt build up. Essential improves seed germination. Adding humic materials will improve plant growth and root development. Essential can be injected through all irrigation systems

Storage And Handling:

Essential should be stored in normal warehouse conditions. It should not be stored in direct sunlight or temperatures above 95° for long periods of time. Replace cap after using. Never store exposed to the air. Since Essential contains a high percentage of solids it is important to mix or shake well before use. Essential is made from natural organic products and is therefore safe to handle and use. Essential is compatible with all fertilizers and technical products.

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MSDS Essential Plus

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GROWTH PRODUCTS, LTD. 914-428-1316
P.O. BOX 1252
WHITE PLAINS, NY 10602

MATERIAL SAFETY DATA SHEET

SECTION ONE - PRODUCT DESCRIPTION

TRADE NAME:	GROWTH PRODUCTS
NAME:	ESSENTIAL PLUS
TYPE:	LIQUID FERTILIZER
SOLUTION	
APPLICATION:	PROPRIETARY PRODUCT
GROWTH PRODUCTS INC.	

SECTION TWO - HAZARDOUS INGREDIENTS

THIS MATERIAL IS NOT A 'HEALTH HAZARD' OR A 'PHYSICAL HAZARD' AS DETERMINED WHEN REVIEWED ACCORDING TO THE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION'S 29 CFR 1910.1200 'HAZARD COMMUNICATIONS' STANDARD.

CHEMICAL HAZARD RATING
HEALTH = 1 (SLIGHT)
FIRE = 0 (LEAST)
REACTIVITY = 0 (LEAST)

SECTION THREE - PHYSICAL DATA

APPEARANCE	THICK SOLUTION
COLOR	BROWN
ODOR	SWEET / SALTY ORGANIC
SMELL	
WEIGHT PER GALLON	8.99# @ 21 DEG. C
STORAGE LIFE AT 70 DEG. F	2 YEARS
PH-21 DEG. C	7.5 - 8
WATER SOLUBILITY	COMPLETELY MISCIBLE
EVAPORATION RATE	SAME AS WATER
BOILING POINT	ABOUT 210 DEG. F
FREEZING POINT	32 DEG. F

SECTION FOUR - FIRE FIGHTING DATA

FLASH POINT (METHOD USED CLOSED CUP)	NONCOMBUSTIBLE
FLAMMABLE LIMIT	LEL: N.A. UEL: N.A.
EXTINGUISHING MEDIA	DOES NOT BURN
SPECIAL FIRE FIGHTING PROCEDURES	NONE
UNUSUAL FIRE & EXPLOSION PROCEDURES	NONE

SECTION FIVE - HEALTH & FIRST AID DATA

THRESHOLD LIMIT VALUE: NONE ESTABLISHED
EFFECTS OF OVER EXPOSURE: LIQUID CONTACT MAY CAUSE SLIGHT EYE IRRITATION AND REPEATED SKIN EXPOSURE MAY CAUSE SOME SKIN IRRITATION. INGESTION: CALL A PHYSICIAN IMMEDIATELY IF SIGNIFICANT AMOUNTS HAVE BEEN SWALLOWED. GIVE THE EMPLOYEE LARGE AMOUNTS OF WATER OR MILK TO DRINK FOR DILUTION EFFECT. DO NOT INDUCE VOMITING.

INHALATION: NOT EXPECTED TO BE HARMFUL UNDER NORMAL CONDITIONS OF USE, HOWEVER, IF ALLOWED TO BECOME AIRBORNE, MAY CAUSE IRRITATION OF NOSE, THROAT AND LUNGS.
SKIN: MAY CAUSE IRRITATION ON PROLONGED OR REPEATED CONTACT.
EYES: MAY CAUSE IRRITATION ON PROLONGED OR REPEATED CONTACT.

SECTION SIX - REACTIVITY DATA

STABILITY:	STABLE
CONDITIONS TO AVOID IF UNSTABLE:	NOT APPLICABLE
INCOMPATIBILITY WITH OTHER MATERIALS:	NOT APPLICABLE
HAZARDOUS DECOMPOSITION	
PRODUCTS OF DRY MATERIAL:	CO, CO2, NH3, ALDEHYDES (INCLUDING FORMALDEHYDE), PARTICULATE MATTER AND OTHER ORGANIC COMPOUNDS.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR
CONDITIONS TO AVOID
UNCONTROLLED POLYMERIZATION: NOT APPLICABLE.

SECTION SEVEN - SPILL & DISPOSAL PROCEDURES

STEPS TO BE TAKEN TO HANDLE SPILLS OR RELEASES: PREVENT PRODUCT FROM ENTERING DRINKING WATER SUPPLIES. COLLECT LIQUID OR SOLIDIFY WITH ABSORBANT MATERIAL AND PACKAGE FOR DISPOSAL ACCORDING TO LOCAL, STATE, AND FEDERAL REGULATIONS. WASTES DISPOSAL PROCEDURES: THIS PRODUCT IS LIKELY TO HAVE A PH LESS THAN 8.5 AND WOULD NOT BE CONSIDERED A FEDERAL HAZARDOUS WASTE ACCORDING TO EPA REGULATION 40CFR 261. DISPOSE IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.

PERSONAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: NOT NORMALLY NEEDED VENTILATION: WHERE AIR CONTAMINANTS CAN EXCEED ACCEPTABLE CRITERIA, USE NIOSH/MSHA APPROVED RESPIRATORY PROTECTION EQUIPMENT. RESPIRATORS SHOULD BE SELECTED BASED ON THE FORM AND CONCENTRATION OF CONTAMINANTS IN AIR IN ACCORDANCE WITH OSHA 29 CFR 1910.134 OR OTHER APPLICABLE STANDARDS OR GUIDELINES. USE GOGGLES IF CONTACT IS LIKELY. WEAR IMPERVIOUS GLOVES AS REQUIRED TO PREVENT SKIN CONTACT.

SECTION EIGHT - SPECIAL PRECAUTIONS

NOT HARMED BY FREEZING, BUT THAW FROZEN FERTILIZER SLOWLY AND STIR BEFORE USING.
STORE IN A COOL PLACE. ROTATE STOCK IN STORAGE TO USE OLDEST FIRST. REFER TO PRODUCT SPECIFICATIONS.

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