Micronovo Technologies Pty Ltd
ABN: 92 676 406 965
c/o Gate 3, Botany Industrial Park
Denison St Banksmeadow NSW

Technical Datasheet: ActiTPH™ Bioremediation Nutrient Solution

Advanced Nutrient Solution for Hydrocarbon and Organohalide Remediation

Product Overview

ActiTPH™ is a nutrient solution by Micronovo Technologies engineered for efficient petroleum hydrocarbon degradation in contaminated soil and groundwater using bioremediation. It provides an optimized nutrient profile for remediation professionals and industrial users seeking effective, safe site clean-up solutions.

Bioremediation is an environmentally friendly process that uses microorganisms to break down pollutants in soil and water, transforming harmful substances into less toxic or harmless products. By supplying essential nutrients, ActiTPH™ enhances the natural biodegradation activities of these microbes, thereby accelerating the remediation of petroleum-contaminated sites.

Key Features and Benefits

Complete NPKS Nutrient Profile: Provides nitrogen (in urea, ammonium, nitrate, and organic forms), phosphorus, potassium, and sulphur to support robust microbial growth.

Trace Elements and Enhancers: Contains essential micronutrients such as calcium, magnesium, iron, zinc, and manganese, alongside over 5% proprietary microbial enhancers (including non-ionic surfactants, humic substances, and labile carbon) to accelerate biodegradation.

Non-Hazardous Formulation: Safe for industrial use, ActiTPH™ is classified as non-hazardous, minimising risk during transport, handling, and application.

Versatile Application: Suitable for a variety of remediation treatment methods for fuel, oil, BTEXN etc contaminated soil and groundwater.

Ease of Use: Supplied in concentrated form for simple dilution and application using a wide variety of choice of application equipment.

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Typical Applications

As the name suggests, ActiTPH™ formulation is effective at stimulation the oxidative bioremediation of the full range of TPH (Total Petroleum Hydrocarbons), ie: BTEXN, F1 to F4, aliphatic and aromatic. ActiTPH™ performs across a variety of remediation system designs and using various sources of oxygen (or electron acceptors).

Petroleum Hydrocarbon Contaminated Soil Remediation:

ActiTPH™ is suitable as the biostimulation nutrient source for a variety of soil bioremediation protocols, including:

- Vacuum and blower-aerated biopiles
- Mechanically turned windrows
- Soil farming operations
- Spot in-situ treatment of small fuel spills
- Large areas and engineered systems: apply via water cart spray, sprinkler or sub-surface irrigation systems.
- Small areas/spot treatment: can be applied via hand spray nozzle or watering can.

ActiTPH™ is an ideal complementary treatment to TerraKleen's Remediator™. Remediator™ absorbs the oil, provides Micronovo's AusRPH™ petroleum degrading bioaugmentation cultures, aides soil conditioning/moisture retention and provides granular nutrients. ActiTPH™ accelerates the initial stages of bioremediation by providing dissolved nutrients in readily available form as well as microbial enhancers.

ActiTPH™ is also a convenient way to add nutrients through the irrigation system as bioremediation progresses. This ensures minimal nutrients are added to achieve your remediation goals and avoids mechanical mixing of additional granular nutrients as remediation progresses.

The above protocols use air as the source of oxygen, however, ActiTPH™ is also suitable for use with chemical Oxygen Release Compound (ORC).

Petroleum Hydrocarbon Groundwater Remediation:

Groundwater petroleum hydrocarbons may be bioremediated aerobically (eg. using air sparging super-critical oxygenated water or ORCs to supply the electron acceptor). They can also be remediated using anaerobic oxidation protocols (eg. using sulfates or nitrates as electron acceptors). ActiTPH™ is an effective source of nutrients to complement both these protocols and the electron acceptors used.

Contact Micronovo Technologies to discuss groundwater remediation treatment design using ActiTPH™.

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Product Composition

Component	Concentration
Total Nitrogen (N)	20%
- as urea	9.4%
- as ammonium	5.9%
- as nitrate	4.6%
- as organic	0.1%
Total Phosphorus (P)	2.1%
Total Potassium (K)	1.1%
Total Sulphur (S) as sulphate	0.7%
Calcium (Ca)	250 mg/L
Magnesium (Mg)	250 mg/L
Iron (Fe)	120 mg/L
Zinc (Zn)	120 mg/L
Manganese (Mn)	100 mg/L
Microbial Enhancers	>5% (non-ionic surfactants, humic substances, labile carbon)
Specific Gravity (SG)	1.3 kg/L

Usage Instructions

1. Mix or shake ActiTPH™ thoroughly before dilution to ensure a uniform product.
2. Dilute at a ratio of 20:1 using rainwater or dechlorinated potable water.
3. Ideally, application rates should be determined based on TPH concentration and the selected remediation method. For site-specific recommendations, contact Micronovo Technologies.
4. Apply the diluted solution evenly across the contaminated area or into groundwater as per the chosen remediation design.

Storage and Handling

- Store ActiTPH™ in a cool place, away from direct sunlight.
- Shake or mix before use to re-suspend nutrients and enhancers.
- Non-hazardous for industrial use, however standard personal protective equipment (PPE) is recommended during handling.
- Always follow site safety procedures and consult the product Safety Data Sheet before use.

Other Uses: Bioremediation of Organohalide Contaminants

ActiTPH™ serves as an excellent source of essential nutrients and enhancers, making it highly suitable for use in conjunction with Tersus Advanced EDS™ (Electron Donor System) and Micronovo's range of Organohalide Respiring Bacteria bioaugmentation cultures.

Through the joint application of ActiTPH™ and Tersus Advanced EDS™, microbial activity is enhanced, facilitating the breakdown of stubborn organohalide compounds. These include common environmental pollutants such as per-chloroethene (PCE), trichloroethene (TCE), dichloroethane (DCA or EDC), chloroform (CF), and polychlorinated biphenyls (PCBs).

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Contact Micronovo Technologies for more advice regarding the treatment of organohalide contaminated soil and groundwater.

Contact and Support

For technical support, site-specific recommendations, or to obtain further information about ActiTPH™ and its applications, please contact Micronovo for technical support or TerraKleen to place an order.

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