

Material Safety Data Sheet

Hou-Actinite Natural Organic Fertilizer (Dried Sewage Sludge)

Date of Preparation: 10/85

MSDS No. HOU-1

Revisions: 6/90; 12/96

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Hou-Actinite Natural Organic Fertilizer
 Chemical Formula: N/A
 CAS Number: N/A
 Other Designations: Dried Sewage Sludge
 General Use: Organic Fertilizer
 Manufacturer: City of Houston, Department of Public Utilities - Wastewater Operations,
 P.O. Box 1562, Houston, Texas 77251, Phone (713) 671-4200, FAX (713)
 678-8824

24-Hour Emergency
 Contact & Phone Number: Supervisor of Wastewater Operations - Control Center -
 Phone 670-1900

Section 2 - Hazards Identification

★★★★★Emergency Overview★★★★★

Black/brown solid (granules or powder) with musty odor of organic decomposition, especially when wet. May auto-ignite under high temperature and moisture conditions. High dust concentrations may result in explosion hazard in the presence of ignition sources.

Potential Health Effects

Primary Entry Routes: Inhalation, Ingestion, and Skin Contact

Acute Effects

Inhalation: Airborne dust exposures would not be expected to present an inhalation hazard at concentrations below the occupational exposure limits of "nuisance dust". Airborne concentrations should be maintained below the PEL/TLV for Particulates Not Otherwise Regulated (PNOR). [i.e. (15 mg/m³) (10mg/m³ for total dust) and (5mg/m³ for respirable dust)] Higher concentrations could cause upper respiratory tract irritation.

Eye: Dust may cause temporary irritation

Skin: May cause irritation for sensitive individuals

Ingestion: Under normal conditions of use, this should pose a negligible risk.

Carcinogenicity: IARC, NTP, and OSHA do not list this type of product as a carcinogen. This contains some substances considered to be carcinogens by OSHA, IARC or NTP. However, they are not present in concentrations greater than 0.1%.

Medical Conditions Aggravated by Long-Term Exposure: Individuals with respiratory conditions, such as asthma, may be sensitive to dust exposures.

Section 3 - First Aid Measures

- Inhalation:** If breathing difficulty should occur, remove from the area to fresh air and obtain medical attention if symptoms of illness appear or if breathing difficulty continues.
- Eye Contact:** Flush eyes with clean water continuously for at least 15 minutes. Remove contact lenses and lift eyelids while flushing. Obtain medical attention if pain or redness persists after flushing is completed.
- Skin Contact:** Wash skin thoroughly with soap and water.
- Ingestion:** Not an expected route of exposure. If ingestion occurs consult with a physician.
- After first aid, get appropriate in-plant, paramedic, or community medical support.*

Section 4 - Fire-Fighting Measures

- Flash Point: N/A
- Flash Point Method: N/A
- Auto-ignition Temperature: 311°F (155°C) (for settled dust layer) & 1103°F (595°C) for dust cloud
LEL: N/A
- UEL: N/A
- Flammability Classification: Combustible solid and "moderate" dust explosion severity hazard of 0.15oz. /cubic foot
- Extinguishing Media: Water, foam CO₂ or dry chemical
- Unusual Fire or Explosion Hazards: Stored material may smolder from autoignition without open flame. Smothering with available Hou-Actinite may cease the smoldering condition.
- Hazardous Combustion Products: Carbon Monoxide, carbon dioxide, oxides of nitrogen, etc.
- Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive pressure mode.

Section 5 - Accidental Release Measures

- Spill/Leak Cleanup Procedures:**
We recommend that the purchaser establish a spill prevention control, and counter-measure plan. This plan should include procedures for proper storage as well as a clean-up of spills and leaks. The procedure should conform to safe practices and provide for proper recovery or disposal. Depending on the quantity spilled, notification of the National Response Center (800-424-8802) may be required. Remove or eliminate all sources of ignition. Material should be picked up in a manner that minimizes dispersion of dust into the air. Non-sparking equipment and tools should be used. Clean up personnel should wear respiratory protection against dust.
- Regulatory Requirements:**
Follow applicable OSHA regulations (29 CFR 1910.120).

Section 6 - Handling and Storage

Storage and Handling Requirements: Avoid unnecessary exposures to high dust concentrations. Practice good housekeeping to avoid dust accumulations, and follow good personal hygiene practices.

Section 7 - Exposure Controls / Personal Protection

Engineering Controls: Wet methods can be used to suppress generation of airborne dust.

Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below PELs/TLVs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contaminant, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environment environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye-and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Personal Hygiene: Make washing facilities available. Never eat, drink, or smoke in work areas. Practice good personal hygiene after working around this material, especially before eating, drinking, smoking, using the toilet or, applying cosmetics.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean protective equipment.

Section 8 - Physical and Chemical Properties

Physical State: Black/brown solid (granules or powder)
Water Solubility: <1.5 (by wt.)

Appearance and Odor: Musty

Boiling Point: NA

Vapor Pressure: NA

Melting Point: NA

Vapor Density (Air=1): NA

% Volatile: Negligible

Density: 40-47 lbs./cubic foot

Specific Gravity (H₂O=1, at 4°C): NA

pH: 4.2-6.1

Section 9 - Stability and Reactivity

Stability: Product is stable at room temperature in closed containers under normal storage and handling conditions. However, elevated temperatures can result in auto-ignition (See "Conditions to Avoid" below).

Polymerization: Hazardous polymerization will not occur.

Chemical Incompatibilities: Strong oxidizing agents.

Conditions to Avoid: 10-15% moisture, subject to auto-ignition as well as heat, sparks, & open flames (See Section 4) Care should be taken to avoid exposing dust layer of this material to temperatures above 275°F (125°C)

Hazardous Decomposition Products: Due to the presence of cyanides and sulfides, precautions should be taken to avoid contact with acids, which could result in the generation of toxic gases (i.e. hydrogen cyanide and/or hydrogen sulfide). Thermal oxidative decomposition can produce carbon monoxide, carbon dioxide, oxides of nitrogen, & other combustion products.

Section 10 - Toxicological Information

Toxicity Data:

Acute Oral Effects: Rat, Oral

TDL₀ = 3078 gm/kg (fertility)

TDL₀ = 2934 gm/kg (newborn)

* NIOSH, RTECS (130181). For additional toxicity data, see Section 2 as well as References 10, 11, 12 & 13.

Section 11 - Ecological Information

This product is comprised of treated, processed and stabilized biosolids and, as such, its composition is closely regulated by EPA and by state laws governing fertilizer components. Constituents may be closely monitored and strict limitations have been placed on the quantity of metals and other substances that may be found in the product. When applied to land in accordance with the guidelines of accepted agronomic practices, there are no know major adverse affects on plants, animals, or aquatic life. Entry into surface water systems should be avoided since the nutrient content of this product will increase growth rates of affected plant populations.

For additional ecological information, see References 11, 12, & 14.

Section 12 - Disposal Considerations

Disposal: Used or unused product should be tested to determine hazard status and disposal requirements under federal, state, and local laws and regulations. Disposer must comply with federal, state, and local disposal or discharge laws and regulations.

Material should be recovered and saved for use whenever possible. State and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Consult state and local regulations regarding proper disposal of this material.

Section 13 - Transport Information

DOT Transportation Data (49 CFR 172.101 and 173 Subpart D):
Not regulated as a hazardous material for transportation purposes.

Section 14 - Regulatory Information

EPA Regulations: Standards for the Use or Disposal of Sewage Sludge (40 CFR 503)

RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)

CERCLA Hazardous Substance (40 CFR 302.4): Listed specific per RCRA, Sec. 3001; CWA, Sec. 311 (b)(4); CWA, Sec. 307(a), CAA, Sec. 112

SARA 311/312 Codes: Product is classified as a nuisance dust which, as an irritant, could be a potential acute and chronic health hazard. Individual states may have requirements that differ from federal regulations.

SARA Sections 302 & 313: May contain substances listed. However, they are present at <1.0% and are unlikely to reach reportable thresholds.

SARA EHS(Extremely Hazardous Substance) (40 CFR 355): Not listed

TSCA: The ingredients in this product are on the 8(b) Inventory List (40 CFR 710) in quantities <1.0%.

OSHA Regulations:

OSHA Hazard Communication Standard 29 CFR 1910.1200. Considered nuisance dust. Product analysis identifies the average percentage (by weight) of individual metals and other trace contaminants to be less than 1.0%, most less than 0.1% (See Section 2).

Air Contaminants (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed as product,

OSHA Specifically Regulated Substance (29CFR 1910, Subpart Z) Not listed as product,

State Regulations:

Texas Water Commission Chapter 312 Subpart Z (Subchapters B & C)

SECTION 15 - OTHER INFORMATION

Prepared by: City of Houston in conjunction with Law Engineering & Environmental Services, Inc.

REFERENCES

1. MSDS for Hou-Actinite (Hou-1): City of Houston (06-90).
2. MBT Fertilizers, Inc.: "Hou-Actinite Natural Organic Fertilizer" Pamphlet, Heavy Metal Contents Summary (10/21/94), and product label.
3. 1992 EPA Sludge Standards (40 CFR 503) for "Exceptionally High Quality Sludge" as outline in "Health & Environment Digest" Vol. 6, No. 9 [article on "Recycling Sewage Sludge: What are the Risks?" (January 1993 issue)].

Section 15 - Other Information Continued

4. OSHA Permissible Exposure Limits (29 CFR 1910, Subpart Z).
5. ACGIH 1994-1995 Threshold Limit Values (TLVs).
6. NIOSH Pocket Guide to Chemical Hazards, 1994.
7. "Milorganite" MSDS (1-2-93).
8. "Explosion Hazards Evaluation of Dried Sewage Sludge" HRC Report 4481 to Binkley and Holmes - Houston, Texas (2/8/80).
9. NIOSH Health Hazards Evaluation Report (HETA 91-261-2245) Metropolitan Sewer District; Mill Creek Facility, Cincinnati, OH.
10. "Toxicologic Studies associated with Agricultural use of Municipal Sewage Sludge and Health Effects among Sewage Treatment Plant Workers" [article in Regulatory Toxicology and Pharmacology Vol. 4, No. 3].
11. "Human Health Risk Assessment for the use and Disposal of Sewage Sludge: Benefits of Regulation EPA (PB 93-111540): November, 1993.
12. "Technical Support Document for Land Application of Sewage Sludge": Volumes I & II (EPA 822/R-93-001a), November, 1992.
13. "Biological Value of Activated Sludge for Growth and Reproduction of Rats "Nutrition Reports International, Vol. 40, No. 6 (December, 1989).
14. Process Design Manual: Land Application of Municipal Sludge (EPA-625/1-83-016) October, 1983.
15. NIOSH Alert "Preventing Organic Dust Toxic Syndrome", NIOSH Publication No. 94-102.

ABBREVIATIONS

CAA:	Clean Air Act
CERCLA:	Comprehensive Environmental Response, Compensation, and Liability Act
CFR:	Congressional Federal Register
CWA:	Clean Water Act
DOT:	Department of Transportation
EPA:	Environmental Protection Agency
HEPA:	High Efficiency Particulate Air
HMS:	Hazardous Materials Information System
IARC:	International Agency for Research on Cancer
NA:	Not Applicable
NFPA:	National Fire Protection Association
NIOSH:	National Institute of Occupational Safety and Health
NTP:	National Toxicology Program
OSHA:	Occupational Safety and Health Administration
PEL:	Permissible Exposure Limit
RCRA:	Resource Conservation and Recovery Act
SARA:	Superfund Amendments and Reauthorization Act of 1986
TLV:	Threshold Limit Value
TSCA:	Toxic Substances Control Act