Material Safety Data Sheet Milorganite® 5-2-0 Fertilizer

Product Name: Milorganite® 5-2-0 Fertilizer

Date Prepared: January 2, 1993 Date Revised: November 17, 2011

Section 1: CHEMICAL PRODUCT AND COMPANY INFORMATION

Chemical Name: Fertilizer Synonym(s): Biosolids, Milorganite® is a fertilizer product manufactured from various microbes used to digest sewage sludge.
CAS No: 68512-89-0

Manufactured by: Milwaukee Metropolitan Sewerage District
260 W. Seeboth Street
Milwaukee, WI 53204
Emergency Telephone: 800-304-6204
Non-Emergency Telephone: 414-221-6810

NFPA HAZARD RATINGS: Health (1), Fire (1), Reactivity (0)
Ranking system: Least (1) slight (2) moderate (3) high (4) extreme

Section 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name/Synonym(s)		CAS No.
Activated Sewage Sludge (biosolids, dried microbes)	86.8 – 90.8% by weight	8049-99-8
Iron chloride*	1-3% Iron (Fe) by weight	7705-08-0
Iron sulfate*	1-3% Iron (Fe) by weight	10028-22-5
*Total Iron (Fe) 4% by weight		
Water	4-8% by weight	7732-18-5
Calcium Carbonate	1.2% by weight	471-34-1
Polymerization agent(s)	<0.01% by weight	Varies
Fecal coliform	<0.22 MPN/g TS	NA

Trace metals and volatile organics can be detected in quantities less that 1.0%, most less than 0.1%. These components and pathogenic agents are of a low quantity to allow this product to meet US EPA 40CFR Part 503 Class A Exceptional Quality biosolid requirements.

(California Only-Proposition 65 Warning:)
This product contains detectable quantities of chemicals known cause cancer, birth defects or other reproductive harm. This notice in no way implies that we have any evidence or experience to indicate that any genuine hazard of cancer, birth defects, or reproductive harm results from the normal, proper handling described on our labels and related literature."

ACGIH TLV/OSHA PEL
ACGIG Nuisance dust limit of 10mg/M^3 (inhalable) and 3mg/M^3 (respirable) may apply to this product.

Section 3: HAZARDS IDENTIFICTION

Primary routes of entry: _No_ Skin _No_ Eye
_No_ Inhalation _ Yes_ Ingestion

SIGNS & SYMPTOMS OF EXPOSURE:
Acute: ND
Chronic: Darkened stools if ingested in large quantities.

Section 4: FIRST AID MEASURES

Eyes: Remove contacts. Flush promptly with plenty of water for at least 15 minutes.
Skin: After using product, wash contaminated area with soap and water.
Inhalation: Remove to fresh air
Ingestion: If suffering gastrointestinal discomfort, treat symptomatically.
Note to Physician: No specific antidote. Treat symptomatically.
Medical Conditions Aggravated by Exposure: Asthmatics exposed to excessive dusts may have trouble breathing.

Section 5: FIRE FIGHTING MEASURES

Flash Point (Method): NA LEL: ND UEL: ND
NFPA/HIMS Rating: Health: 1 Fire: 1 Reactivity: 0
Extinguishing Media: Foam, Water Spray, CO_2
UEL (Upper Explosive Limit) for fugitive dust: No UEL determined
LEL (Lower Explosive Limit) for fugitive dust: 10 g/m3 as grain dust (OSHA dust limits. At 50 g/m3, one cannot see the fingers on their hand at one foot.

Special Fire fighting Procedures: Do not breathe fumes. Firefighters should wear normal fire protection gear. Prevent runoff from entering drains, sewers or any body of water. Becomes slippery when wet, guard against falls.

Unusual Fire & Explosion Hazards: Do not breathe fumes. At high temperatures, this type of fertilizer can give off undefined fumes. Fine dust dispersion in air may form an explosive mixture. Bulk wetted material may generate heat upon storage. Use of TEFC electrical equipment is advised to aid in control of dust-caused explosions. Control fugitive dust at its' source by containment or treating Milorganite with a dust suppressant.

Section 6: ACCIDENTAL RELEASE MEASURES

If Material is Spilled: Sweep, vacuum or shovel material into labeled container. If at all possible, reuse product. Ensure that disposal is in compliance with local, state or federal regulations.

Section 7: HANDLING & STORAGE

Handling handle as any fertilizer. Avoid breathing dust. Wash after handling. Do not contaminate water by disposal of equipment washwaters. Do not allow to become wet during storage.
Storage: Store in a cool, dry area out of reach of children and animals. Keep dry. Bulk wetted material may generate heat upon storage.

Note: Some coprophagic canines (fecal eating dogs) may be attracted by the odor of biosolids, transfer their fecal attraction to Milorganite® 6-2-0 fertilizer, rip open bags in storage and over eat. A dog may be sick for 24 to 48 hours, beginning with vomiting that can lead to dehydration, incontinence (stiffness in the hind legs), atrophy, depression, and black stools due to the high carbon content of Milorganite® 6-2-0. In most cases, symptomatic care prescribed by a veterinarian will relieve these symptoms.

Section 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Protective equipment suggested for outdoor applications:
Wear eye goggles/safety glasses if product may be expected to come in contact with eyes.
Protective equipment suggested for confined areas:
Provide sufficient ventilation. Wear appropriate safety equipment for any hazards encountered. Product by itself presents no specific hazards.

Section 9: PHYSICAL & CHEMICAL PROPERTIES

Solubility in water: slight
pH: slightly acidic (9 parts water to 1 part Milorganite)
Appearance: Dark free flowing granules. Product US Screen size -8 +48 with less than 0.1% -48.
Odor: Earthy scent.
Bulk Density: 50-52 lbs. per cubic foot

Section 10: STABILITY & REACTIVITY

Stability: Stable.
Conditions to Avoid: Excessive heat; absorbs moisture in highly humid areas.
Incompatibility: Strong acids, alkalis and oxidizing agents.

Hazardous Decomposition Products: Expected to emit the same types of toxic smoke as would be released during combustion of other organic materials.
Hazardous Polymerization: Will not occur.

Section 11: TOXICOLOGICAL INFORMATION

Toxicity Data:
Oral (acute): ND
Dermal (acute): ND
Inhalation (acute): ND
Teratogen/Mutagen/ Carcinogen (NTP): Not listed.
Potential Carcinogen OHSA/IARC: Not listed.

US EPA 40 CFR Part 503 (Biosolids Rule)
Under the Clean Water Act, the U.S. Environmental Protection Agency (EPA) has conducted extensive screening to determine likely pollutants in sewage sludge, a/k/a biosolids. EPA's National Survey of Biosolids analyzed for a total of 412 pollutants, including every organic, pesticide, dibensofuran, dioxin and PCB analyte for which EPA had gas chromatography and mass spectrometry (GC/MS) standards. 64 Fed. Reg. at 72047-48 (discusses the history of Part 503 information gathering on the fate and concentrations of pollutants in biosolids). See, www.epa.gov/fedrgstr.

Where the *available scientific information* indicated there was no risk of harm even at the highest pollutant concentration level found in the Biosolids Survey, the pollutants were dropped from further risk assessment. Most of the 412 pollutants are simply not present in biosolids at levels of concern. The National Standards for Bisolids Use, 40 CFR Part 503, establish limits for nine common metals and pathogenic organisms (which heat drying kills) at the no observable adverse effect level and a level of protection of 1 case in 10,000 for cancer risk. The 1993 technical support documents on biosolids risk assessment are available at EPA's website: www.epa.gov/OST/pc/municipal.html, and the National Biosolids Partnership also links the scientific risk assessments, www.biosolids.org

Milorganite® is well below the Part 503 national standards. Where EPA lacked sufficient *available scientific* data to establish a standard, the pollutants, totally 31, were subjected to a Comprehensive Hazard Identification Study. This screening analysis included dose-response evaluation, exposure assessment and risk characterization. The US EPA concluded, in a December 23, 1999, notice published at 64 Federal Register 72048, that only 3 pollutant compounds left on its list, analytically measured as 29 dioxin-like congeners, might pose an increase risk for a hypothetical highly exposed (through the food chain, primarily daily fats, meat fats and fish that have bioaccumulated the congeners) rural breast feeding mother and child. EPA has proposed a national standard and a final standard is expected after EPA completes its comprehensive Dioxin Reassessment, see, www.epa.gov/ncea

Amyotrophic lateral sclerosis (ALS), commonly known as Lou Gehrig's disease
Epidemiologists have studied ALS mortality among Wisconsin residents, employees who make Milorganite® and workers at sewage treatment plants in Chicago and found the ALS morality rate to be normal or slightly below that of general population. ALS research has abandoned theories of linkage to metals in diet and has focused on genetic predisposition toward ALS and neurotoxins in particular foods. The complete history of this investigation is available at the National Biosolids Partnership website www.biosolids.org

Section 12: ECOLOGICAL INFORMATION

Keep out of any body of water.

Section 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method(s): Sweep, vacuum or shovel material into labeled container. If at all possible, reuse product. Material is a fertilizer and should be used as such. Keep out of any body of water. Ensure that disposal is in compliance with local, state or federal regulations. Bulk wetted material may generate heat upon storage.

Section 14: TRANSPORTATION INFORMATION

DOT shipping information:
Proper shipping name: Class 50 (fertilizer material)

ID No.: NA
Hazard Class: NA
Hazmat No.: NA
SEC 302: Not listed.
SEC 304: Not listed.
Sec 313: Not listed
CERCLA: Not listed.
CAA: Not listed.
TSCA: Not listed.

Section 15: REGULATORY INFORMATION

SARA Information:

_No_ Immediate (Acute) Health
_No_ Delayed (Chronic) Health
Yes Fire
_No_ Sudden Release of Pressure
_No_ Reactivity

Section 16: OTHER INFORMATION

Format complies with ANSI Z400.1 requirements. Revisions as noted (first issue 01/02/93)

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NA = Not Applicable
ND = Not Determined

Version change
Section 11 update