



June 23, 2023

Ms. Cindy Mulkey
Deputy Director
Office of Siting Coordination
Department of Environmental Protection
2600 Blair Stone Road, MS 5500
Tallahassee, FL 32399-2400

Re: **Okeechobee Plant – PPSA No. PA15-58**
Post-Certification Amendment
Okeechobee Potable Water Treatment System (PWS)

Dear Ms. Mulkey:

Florida Power & Light Company (FPL) is requesting a post-certification amendment to the Site Certification for FPL's Okeechobee Clean Energy Center (OCEC), pursuant to rule 62-17.205(1)(A) F.A.C. The purpose of this amendment request is to obtain approval for a minor change to the previously approved upgrades for OCEC PWS (AM23-280 dated May 31, 2023) and for the current PWS system component.

Three (3) NXT3150 24"x72" cubic feet filters containing Filox media were previously approved through the referenced Amendment AM23-280 and Filox is used currently in the existing PWS system. However, due to change in manufacturing quantities, Filox media is no longer readily available in the market for purchase. Therefore, FPL is seeking an approval to switch from Filox media to Katalox Light media which is a "like" filter media with same chemical composition. Please see attached proposed and existing product Safety Data Sheets (SDS) for your review.

Thank you for your attention to and consideration of FPL's request to amend the Site Certification for the OCEC. If you have any questions regarding this submittal, please do not hesitate to contact me at 561-691-7068 or Kennard.proctorjr@fpl.com.

Sincerely,
FLORIDA POWER & LIGHT COMPANY

A handwritten signature in blue ink, appearing to read 'Ken Proctor', is written over the company name.

Ken Proctor
Sr. Project Manager

Attachments:
Filox and Katalox Light SDS

Watts Water Quality and Conditioning Products, Inc.	MATERIAL SAFETY DATA SHEET Product Name FILOX™	MSDS # 40 Date: 04/01/15 Rev.: 00
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MATERIAL SAFETY DATA SHEET

FILOX™

Company name: **Watts Water Quality and Conditioning Products, Inc.**

Address: **13700 Hwy 90 West**

State/Country: **San Antonio Texas, USA**

Postal code: **78245**

Phone number: **(210) 677-8400** Fax: **(210) 677-8433**

EMERGENCY PHONE
NUMBERS
(800) 837-2619 (ChemTel)

SECTION 1: PRODUCT AND COMPANY INFORMATION

HMIS (NPCA)	
HEALTH	2
FLAMMABILITY	0
REACTIVITY	1
PERSONAL PROTECTION	E

FILOX™

PRODUCT ID: EFP-044

PRODUCT NUMBER: N/A

MSDS NUMBER: BCGL

PREPARATION DATE: 04/2015

DESCRIPTION: FILOX™ is a specially selected granular pyrolusite ore (manganese dioxide) used for water purification – the removed of heavy metals and sulfur compounds.

PRODUCT INFORMATION:

CAS NUMBER: Mixture. (For ingredient CAS numbers, see SECTION 2 – COMPOSITION / INFORMATION ON INGREDIENTS.)

SYNONYMS: No product synonyms. (For ingredient synonyms, see SECTION 2 – COMPOSITION / INFORMATION ON INGREDIENTS.)

SECTION 2: COMPOSITION / INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS PLUS OTHER SIGNIFICANT COMPONENTS:

COMPONENT	SYNONYMS AND TRADE NAMES	CAS#	%BY WT.
Pyrolusite (MnO ₂)	Manganese Dioxide; Manganese Black; Manganese (IV) Oxide; Peroxide Manganese Superoxide.	1313-13-9	78-82

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Nonhazardous Ingredients / Inert Materials	N/A	N/A	17-19
Quartz (SiO ₂)	Agate; Cristobalite; Crystallizes Silicon Dioxide; Quartz Sillica; Sillica Dust; Sillica Flour (Powdered Crystalline Sillica); Sillica, Crystalline Quartz; Tripoli.	14808-60-7	1-3
Barium compounds (as Ba), comp. of Mn ore ¹	N/A	7440-39-3	ND
Lead (Pb, inorganic compounds) ¹	Glover; Lead flake; Lead inorganic; Lead metal; Plumbum.	7439-92-1	0.01- 0.03

NOTES:

- These trace metals are not in the free metal form but exist as integral, inorganic, mineralogical constituents in the mineral Ores.

SECTION 3: HAZARDS IDENTIFICATION

Component	Percentage (by wt.)	OSHA		ACGIH TLV		NIOSH REL		LISTED CARCINOGEN (YES / NO)		
		PEL [mg/m ³]	CEILING [mg/m ³]	TWA [mg/m ³]	STEL [mg/m ³]	TWA [mg/m ³]	STEL [mg/m ³]	NTP	IARC	OSHA
MnO ₂	78-82	N/A	5F (as Mn)	5 (as Mn)	NL	1 (as Mn)	3 (as Mn)	NO	NO	NO
Nonhazardous Ingredients/Inert Materials	17-19	1S T; S	NL	10 T; 5R	NL	NL	NL	NO	NO	NO
Quartz (SiO ₂)	1-3	10/(% SiO ₂ +2)	NL	0.025	0.1	0.05	NL	YES	YES	YES
Barium compounds (as Ba), comp. of Mn ore ¹	ND	0.5 (as Ba)	NL	0.5	NL	0.5	NL	NO	NO	NO
Lead (Pb, inorganic compounds) ¹	ND	0.05	NL	0.05	NL	0.05	NL	YES	YES	NO
NL = Not Listed										

NOTES:

T =Total dust; R = Respirable dust, F = Fume

- Exposure limits listed for each ingredient, is for exposure to dust that may be generated during product transfer and handling.
- FILOX is formulated for use in water purification. Health effects resulting from the product being used for any other purpose of process is not addressed in this material safety data sheet.
- NTP Class 2A: Reasonably anticipated to be a carcinogen, limited evidence of carcinogenicity from studies in humans.
- IARC Group 2A: Probably carcinogenic to humans.

EMERGENCY OVERVIEW: Not a fire or spill hazard. Low toxicity; dry dust is a nuisance particulate. Generally, health effects are provided for exposure to dust that may be generated during product transfer and handling.

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POTENCIAL HEALT EFFECTS:

Primary Route of Exposure: Inhalation.

Relevant Route(s) of Exposure:

Eye Contact: Contact with particulate may cause slight to moderate eye irritation. Abrasive action of dust particulate can damage eye.

Skin Contact: Prolonged or repeated contact may cause slight to moderate skin irritation.

Inhalation: Overexposure by inhalation of airborne particulate, dust, or fumes is irritating to the nose, throat, and respiratory tract. Inhalation of excessive levels of dust or fumes may be harmful.

Ingestion: Ingestion is an unlikely route of exposure; no hazard in normal industrial use. Small amounts (<tablespoonful) swallowed during normal handling operations are not likely to cause injury, however, swallowing larger amounts may cause injury. If ingested quantity, may cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting, abdominal pain, and diarrhea.

Target Organs: Respiratory system, eyes, central nervous system.

Acute Effects of Exposure: Excessive, short-term exposure to airborne mineral dusts and particulate may cause upper respiratory and eye irritation. Exposure via inhalation to high concentration of dusts containing manganese compounds for as little three months have effected the central nervous system.

Chronic Effects of Exposure: Excessive, long-term, inhalation of airborne mineral dusts and particulate may contribute to the development of bronchitis, reduced breathing capacity, and may lead to the increased susceptibility to lung disease. **Manganese poisoning:** The excessive, chronic inhalation of manganese compounds usually begins with complaints of languor and sleepiness. This is followed by weakness in the legs and the development of stolid, mask-like faces. The patient speaks with a slow monotonous voice. Then muscular twitching appear, varying from a fine tremor of the hands to coarse, rhythmical movements of the arms, legs, and trunk. There is a slight increase in tendon reflexes, ankle and patellar clonus, and a typical Parkinsonian slapping gate.

Signs and Symptoms of Exposure: (Dust) tearing of eyes, burning sensation in the throat, cough, chest discomfort.

Medical Conditions Generally Known to be Aggravated by Exposure: The excessive inhalation of mineral dust may aggravate pre-existing chronic lung conditions such as, but not limited to, bronchitis, emphysema, and asthma.

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Reproductive Hazards: Not reproductive hazards.

POTENTIAL ENVIRONMENTAL EFFECTS: Derived from natural ores; no adverse environment effects known. However, prevent spilled product from entering streams, water bodies, and wastewater systems. This material is used as an agricultural product.

SECTION 4: FIRST AID MEASURES

FIRST AID PROCEDURES:

Eye Contact: Remove material by immediately flushing eyes with clean, flowing, lukewarm water (low pressure) for at least 15 minutes. Get medical attention if pain or irritation persists.

Skin Contact: Immediately wash affected area with mild soap and water to remove any dust adhering to the skin. Get medical attention if irritation develops or persists.

Inhalation: If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop. If not breathing, give artificial respiration or give oxygen by trained personnel, and get medical attention.

Ingestion: Ingestion is an unlikely route of exposure. If ingested in sufficient quantity and victim is conscious, give 1-2 glasses of water or milk. Never give anything by mouth to an unconscious person. Leave decision to induce vomiting to qualified medical personnel, since particles may be aspirated into the lungs. Seek immediate medical attention.

NOTE TO PHYSICIANS: None.

SECTION 5: FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES: Material will not burn. Although not combustible, this material is a strong oxidizing agent, which liberates oxygen during thermal decomposition. It may increase the burning rate of combustibles with a flare-burning effect. It may cause reignition after a fire is extinguished.

EXTINGUISHING MEDIA: Use dry chemical or CO₂ to extinguish fires involving this material.

PROTECTION FOR FIREFIGHTERS: Material should be kept out of eyes and of skin. As in any fire, wear self-contained breathing apparatus pressure-demand. MSHA/NIOSH (approved or

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equivalent) and full protective gear. Do not release runoff from fire control methods to sewers or waterways.

SECTION 6: ACCIDENTAL RELEASE MEASURES

CONTAINMENT: Products is dry solid (granular or powder) and not readily soluble in water. However, prevent spilled product from entering streams, water bodies, and wastewater systems.

CLEANUP: Vacuum or sweep up dry material and place in a container for reuse. Avoid creating excessive airborne dust. Cleanup personnel need to wear approved respiratory protection (air-purifying or air-supply), gloves, long, sleeved clothing and goggles to prevent irritation from contact and inhalation.

COLLECTION: If possible, collect and reuse spilled product.

REPORTING: SEE SECTION 15: REGULATORY INFORMATION

EVACUATION: Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

SECTION 7: HANDLING AND STORAGE

HANDLING: Minimize dust generation and accumulation. Avoid breathing dust. Avoid contact with skin and eyes.

STORAGE: Store in a cool, dry area. Keep container closed when not in use. Product or component is a powerful oxidizer, hence it should not be stored near organic matter or other easily oxidizable substances, e.g., sulfur, sulfides, phosphides, hypophosphides, etc. or incompatible materials such as hydrogen peroxide and sodium peroxide.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: If user operations generate dust, fume, or mist, use ventilation to keep exposure to airborne contaminants below the exposure limits in SECTION 2.

PERSONAL PROTECTIVE EQUIPMENT:

Eye & Face Protection: Corrosive to eyes. Wear protective safety goggles when dust generation is likely.

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Skin Protection: Wear clothing sufficient to cover the skin, safety shoes, and leather gloves for hand protection against dry material.

Respiratory Protection: Use NIOSH/MSHA approved respiratory protection (air purifying or air supplying) when concentrations are above exposure limit value. A respiratory protection program that meets OSHA 29 CFR part 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant the use of a respirator.

General Hygiene Considerations: Wash thoroughly after using product. Wash contaminated clothing. Wash hands before eating or drinking.

EXPOSURE GUIDELINES: See SECTION 2.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: A uniform, brownish-black, granular material.

ODOR: Odorless.

PHYSICAL/CHEMICAL/PROPERTIES:

Bulk density:	72 lbs/ft ³	Freeze Point:	Solid at STP	% volatile by vol:	1-2% H ₂ O
Water Solubility:	Slight	Melting Point:	>2800 °F	Vapor Density:	N/A
pH: (10% aqueous slurry)	9-10	Boiling Point:	N/A	Vapor Pressure:	N/A

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable under normal conditions of storage.

CONDITIONS TO AVOID: None under normal conditions.

MATERIALS TO AVOID: Pyrolusite (MnO₂) is a powerful oxidizer, hence it should not be heated or rubbed with organic matter or other easily oxidizable substances, e.g., sulfur, sulfides, phosphides, hypophosphides, etc. Material is flammable by chemical reaction. Incompatible with hydrogen peroxide and sodium peroxide. Keep away from heat and flammable materials.

HAZARDOUS DECOMPOSITION PRODUCTS: None under normal conditions.

HAZARDOUS POLYMERIZATION: Will not occur.

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SECTION 11: TOXICOLOGICAL PROPERTIES

RTECS TOXICITY DATA FOR PRODUCT COMPONENTS:

COMPONENT	CAS#	RTECS TOXICITY DATA
Pyrolusite (MnO ₂)	1313-13-9	Acute Dermal: Mouse LD 50 Route; Subcutaneous Dose: 422mg/kg. Chronic (Multiple Dose) Inhalation: Rate Dose: 1800 ug/m³/24H/35D-C; Toxic Effects: Brain and coverings – Recordings from specific areas of CNS; Blood – Charges in serum composition; Biochemical – True cholinesterase. Reproductive/Teratogenic: Mouse Route: Inhalation; Dose: 49 mg/m³/7H; Duration: female 75D prior to mating Effects on Newborn – Growth statistics; Behavioral.
Nonhazardous Ingredients / Inert Materials	N/A	N/A
Quartz (SiO ₂)	14808-60-7	Acute Inhalation: Human LC Lo Dose: 300 ug/m³/10Y-l; Toxic Effects: Liver – Other changes; Human TC Lo Dose: 16 mppcf/8H/17,9Y-l; Toxic Effects: Lungs, Thorax of Respiration –Fibrosis, focal (pneumoconiosis); Lungs, Thorax, of Respiration – Cough; Lungs, Thorax, of Respiration – Dyspnea. Chronic (Multiple Dose) Inhalation: Rat Dose: 80 mg/m³/28W-l; Toxic Effects: Lungs, Thorax of Respiration – Fibrosis, focal (pneumoconiosis); Blood – Changes in spleen. Rat Dose: 108mg/m³/6H/3D-l; Toxic Effects: Biochemical – Phosphatases; Biochemical – Other oxidoreductases; Biochemical – Other proteins: Rat Dose: 58 mg/m³/13W-l; Toxic Effects: Lungs, Thorax of Respiration – Other changes: Endocrine – Changes in thymus weight; Blood –Changes in leukocyte (WBC) cell count. Rat Dose: 1475 mg/m³/8H21W-l; Toxic effects: Lungs, Thorax, of Respiration – Other changes. Rat Dose: 4932 mg/m³/24H/39W-C; Toxic Effects: Endocrine –Changes in spleen weight. Immunological including allergic – Decrease in humoral immune response. Rat Dose: 28 mg/m³/3W-l; Toxic Effects: Lungs, Thorax of Respiration – Other changes: Lungs, Thorax, of Respiration – Changes in lung weight. Biochemical – Other enzymes. Mutagenic: Human Micronucleus Test: Cell Type: lung, Dose: 40 mg/cm². Hamster Micronucleus Test: Cell type: lung; Dose: 160 mg/cm². Tumorigenic: Rat Route: Inhalation: Dose 50

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		mg/m ³ /6H/71W-l: Toxic Effects: Tumorigenic – Carcinogenic by RTECS, criteriie: Liver, Tumors, Rat Route: Intravenous: Dose: 50 mg/kg; Toxic Effects: Tumorigenic – Equivocal tumorigenic agent by RTECS criteria; Blood –Lymphomax including Hodgkins disease.
Barium Compounds (as Ba) comp. of Mn ore	7440-39-3	NO RTECS TOXICITY DATA AVAILABLE.
Lead (Pb, inorganic compounds)	7439-92-1	Acute oral: Woman TD Lo Dose: 450 mg/kg/8Y; Toxic Effects: Peripheral nerve and sensation – Flaccid paralysis without anesthesia; Behavioral – Hallucinations, distorted perception; Behavioral – Muscle weakness, Pigeon LD Lo Dose: 160 mg/kg. Acute inhalation: Human TC Lo Dose: 10μg/m³; Toxic Effects: Gastrointestinal – Gastritis; Liver – Other changes. Reproductive/Teratogenic: Rat route; Oral; Dose: 780 mg/kg; Duration: multigeratons: Effects on Embryo or Fetus – Fetotoxicity: Fetal death. Rat Route: Oral; Dose: 1140 mg/kg; Duration: female 140 prior to mating Effects on Newborn – Behavioral. Rat Route: Oral; Dose: 520 mg/kg; Duration: female 7-22D of pregnancy: Effects on Newborn – Biochemical and metabolic. Rat Route: Oral; Dose: 1100 mg/kg; Duration: female 1-22D of pregnancy; Specific Developmental Abnormalities – Blood and lymphatic systems (including spleen and marrow); Effects on Newborn – Growth statistics. Rat Route: Inhalation; Dose: 10 mg/m³ /24H- Duration: female 1-21D of pregnancy; Effects on Embryo or Fetus – Fetotoxicity; Specific Developmental Abnormalities – Blood and lymphatic systems (Including spleen and marrow). Rat Route: Inhalation; Dose: 3 mg/m³ /24H; Duratio: female 1-21D of pregnancy: Effects on Newborn – Biochemical and metabolic. Mutagenic: Human Cytogenetic Analysis; Route: Unreported; Dose: 50 μg/m³. Monkey Cytogenetic Analysis; Route: Oral; Dose: 42 mg/kg/3W.

SECTION 12: ECOLOGICAL INFORMATION

Derived from mineral ores. No data available on any adverse effects of this material on the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

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RCRA: This product as manufactured, is not a RCRA, listed hazardous waste and does not exhibit any characteristics of a hazardous waste, including toxicity (by EPA TCLP method.)

DISPOSAL METHOD: This product is generally suitable for landfill disposal. Follow all applicable Federal, State, and local laws, rules, and regulations regarding the proper disposal of this material. If this product has been altered or contaminated with other hazardous materials, appropriate waste analysis may be necessary to determine proper method for disposal. A qualified environmental professional should determine waste characterization, disposal, and treatment methods for this material in accordance with applicable Federal, State and local regulations and requirements.

SECTION 14: TRANSPORTATION INFORMATION

USDOT INFORMATION: This product is not regulated by USDOT as a hazardous material (49 CFR part 172.101). No UN code assigned. No placard required for transportation.

LABEL:

CAUTION: Avoid contact with eyes, skin, and clothing. Wash thoroughly, after handling and use. Keep in a closed container in a well-ventilated area.

FIRST AID MEASURES:

Eye Contact: Remove material by immediately flushing eyes with clean, flowing, lukewarm water (low pressure) for at least 15 minutes. Get medical attention if pain or irritation persists.

Skin Contact: Immediately wash affected area with mild soap and water to remove any dust adhering to the skin. Get medical attention if irritation develops or persists.

Inhalation: If exposed to excessive levels of dust or fumes, remove to fresh air and get medical attention if cough or other symptoms develop. If not breathing, give artificial respiration or give oxygen by trained personnel, and get medical attention.

Ingestion: Ingestion is an unlikely route of exposure. If ingested in sufficient quantity and victim is conscious, give 1-2 glasses of water or milk. Never give anything by mouth to an unconscious person. Leave decision to induce vomiting to qualified medical personnel, since particle may be aspirated into the lungs. Seek immediate medical attention.

SECTION 15: REGULATORY INFORMATION

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COMPONENTS LISTED IN FEDERAL REGULATIONS AND STATE “RIGHT-TO-KNOW” LAWS:

COMPONENT	CAS#	FEDERAL					STATE (Right-to-Know)			
		RCRA	CERCLA	SARA	SARA EHS	TSCA	PA	NJ	MA	CA
Pyrolusite (MnO ₂)	1313-13-9	NO	YES ¹	YES (as compound)	NO	YES	NO	NO	NO	NO
Nonhazardous Ingredients / Inert Materials	N/A	NO	NO	NO	NO	NO	NO	NO	NO	NO
Quartz (SiO ₂)	14808-80-7	NO	NO	NO	NO	YES	YES	NO	YES	NO
Barium Compounds (as Ba) comp. of Mn ore	7440-39-3	NO	NO	YES	NO	YES	YES	YES	YES	NO
Lead (Pb, Organic compounds)	7439-92-1	NO	YES ²	YES	NO	YES	YES	YES	YES	YES

NOTES:

1. Listed as Compound per CAA Section 1 12.
2. Listed per CWA Section 307(a) RQ: 10 lb (4.535 kg).
3. Listed as compound.

SECTION 16: OTHER INFORMATION

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM of the National Paint & Coatings Association

HEALTH

- 0 – Normal Material
- 1 – Slightly Hazard/Significant Irritation
- 2 – Hazardous / Temporary incapacitation or residual injury
- 3 – Extreme Danger/Serious or permanent injury
- 4 – Deadly

REACTIVITY

- 0 – Stable
- 1 – Unstable under heat or pressure
- 2 – Violent chemical change under heat or pressure
- 3 – Shock and heat may detonate
- 4 – Capable of Detonation or Explosion

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FLAMMABILITY

- 0 – Will not burn
- 1 – Must be preheated before ignition will occur (Flash point greater than 200°F)
- 2 – Must be moderately heated before ignition will occur (Flash point 100°F to 200°F)
- 3 – Can be ignited under almost all ambient temperatures (Flash point 73°F to 100°F)
- 4 – Will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature, or will burn readily when dispersed in air (Flash point below 73°F)

PERSONAL PROTECTION

- A – Safety Glasses
- B – Safety Glasses + Gloves
- C – Safety Glasses + Gloves + Apron
- D – Face Shield + Gloves + Apron
- E – Safety Glasses + Gloves + Dust Respirator
- F – Safety Glasses + Gloves + Apron + Dust Respirator
- G – Safety Glasses + Gloves + Vapor Respirator
- H – Splash Goggles + Gloves + Apron + Vapor Respirator
- I – Safety Glasses + Gloves + Dust and Vapor Respirator
- J – Splash Goggles + Gloves + Apron + Dust and Vapor Respirator
- K – Air Line Hood or Mask + Gloves + Full Suit Boots
- X – Ask supervisor or safety specialist for handling instructions

Watts Water Quality and Conditioning Products, Inc. DISCLAIMER

The information and recommendations contained herein are based upon believed to be correct. However, no guarantee or warranty of any kind, express or implied, is made with respect to be information contained herein. We accept no responsibility and disclaim all liability for any harmful effects that may be caused by purchase, resale, use or exposure to our FILOX. Customers-users of FILOX must comply with all applicable health and safety laws, regulations and orders, including the OSHA Hazard Communication Standard.

Product
KATALOX LIGHT®
CATALYTIC ADVANCED FILTRATION

Watch Water® encourages and expects you to read and understand the entire MSDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1 CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Product Name: Katalox Light

Application: POE Filtration, Catalytic Filtration.
 Iron, Manganese and Hydrogen Sulfide removal.
 Reduction of Arsenic, Lead, Zinc, Copper and Heavy Metals from Drinking Water Treatment. Waste Water Treatment.

Company Identification/Supplier Watch Water GmbH
 Fahrlachstr. 14
 D-68165 Mannheim
 Germany
 Phone: + 49 62187951-0
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2 COMPOSITION / INFORMATION ON INGREDIENTS

- Chemical characterization: Manganese dioxide coated ZEOSORB

Component	Chem. Composition	Formula	CAS-Nr.	Conc. w/w
ZEOSORB	Clinoptilolite	$(Ca,K_2,Na_2,Mg)_4Al_8Si_{40}O_{96} \cdot 24H_2O$	12173-10-3	>85%
Manganese dioxide	Manganese dioxide	MnO_2	1313-13-9	>10%
Hydrated Lime	Calcium hydroxide	$Ca(OH)_2$	1305-62-0	<5%

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non hazardous and/or present at amounts below reportable limits.

3 HAZARDS IDENTIFICATION

Component	CAS-Nr.	Conc.	OSHA PEL TWA 8/40h	OSHA PEL CEILING	ACGIH TLV	Listed Carcinogenic		
		w/w	mg/m ³	mg/m ²	mg/m ²	NTP	IARC	OSHA
ZEOSORB	12173-10-3	>85%	15 (total dust)	N/A	N/A	No	No	No
Manganese dioxide	1313-13-9	>10%	5 (as Mn)	5	0.2 (as Mn)	No	No	No
Hydrated lime	1305-62-0	<5%	15 (total dust) 5 (respirable)	N/A	10	No	No	No

Classification of the substance or mixture

- Classification according to Regulation (EC) No. 1272/2008**
 This product does not require labeling or classification according to 2008/1272/EC.
- Classification according to Directives 67/548/EEC and 1999/45/EC**
 This product does not require labeling or classification according to Directive 67/548/EEC or 1999/45/EC.

Labeling:

- Labeling according to Regulation (EC) No 1272/2008**
 This product does not require labeling according to 2008/1272/EC.

Product
KATALOX LIGHT®
CATALYTIC ADVANCED FILTRATION

- **Labeling according to Directive 67/548/EEC or 1999/45/EC**
This product does not require labeling according to 67/548/EEC or 1999/45/EC

Emergency Overview:

Contact can cause irritation to eyes, skin, respiratory system, and gastrointestinal tract.

Potential health effects:

Inhalation: May cause mild irritation to the respiratory tract. Long-term exposure may cause permanent damage. No components are listed by NTP, OSHA or IARC as a carcinogen.

Ingestion: Not expected to be a health hazard via ingestion. This product can cause mild irritation of gastrointestinal tract if swallowed in small amounts. Large amounts may cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting, abdominal pain, diarrhea.

Skin Contact: May cause mild irritation.

Eye Contact: May cause irritation of eyes. Abrasive action of dust particulate may damage eye.

Aggravation of Pre-existing Conditions: Contact may aggravate disorders of the eyes, skin, central nervous system disorders, gastrointestinal tract, and respiratory system (such as bronchitis, emphysema and asthma).

4 FIRST-AID MEASURES

- **General Information:**
Take off contaminated clothes. Wash immediately with plenty of water. Continue rinsing for at least 10 minutes. If any symptom persists, seek medical attention.
- **Eye contact:** Rinse immediately with plenty of running water. Continue for at least 15 minutes. Seek medical advice the irritation persists.
- **Skin contact:** If irritation occurs wash immediately with plenty of water and non-abrasive soap. Continue for at least 15 minutes. Obtain medical advice if there are persistent symptoms..
- **Inhalation:** Remove patient to fresh air, allow to rest and keep warm. In case of unconsciousness place patient stably in side position for transportation. Obtain medical advice.
- **Ingestion:** First rinse mouth with water. Immediately give 1-2 glasses of water, if victim is fully conscious. Seek medical attention.

5 FIRE FIGHTING MEASURES

- Not considered to be a fire hazard. However, the material contains manganese dioxide which is a strong oxidizing agent and may increase the burning rate of combustibles
- **Flash point:** Not available
- **Extinguishing media:** Any means suitable for extinguishing surrounding fire
- **Unsuitable extinguishing media:** none known
- **Exposure hazards:** none known
- **Combustion products:** At high temperatures the carbon oxides is released
- **Protective equipment:** Firefighters and other exposed, wear self-contained breathing apparatus and protective suit.

6 ACCIDENTAL RELEASE MEASURES

- Contain the discharged material.
- **Personal precautions:** Wear eye protection and protective clothing.
- **Environmental precautions:** Keep out of drains and water courses.
- **Methods for cleaning up:** Vacuum or sweep up material and placed in a designated waste container. Avoid dust formation.
- **Disposal method:** The material be disposed in accordance with applicable local, state and federal regulations.

Product
KATALOX LIGHT®
CATALYTIC ADVANCED FILTRATION

7 HANDLING AND STORAGE

- **Handling:** Normal chemical handling. Dust mask should be used when large quantities are used in the absence of good local exhaust ventilation. Avoid the formation and deposition of dust. Take precautionary measures to avoid static charges. Wash hands after handling.
- **Storage:** Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Store in a cool, dry area. Keep container closed when not in use. Product or component is a powerful oxidizer, hence it should not be stored near organic matter or other strong reductive substances or incompatible materials such as hydrogen peroxide and sodium peroxide. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8 EXPOSURE CONTROL/PERSONAL PROTECTION

Exposure limit: no specific value; the national exposure limit for dust should be observed.

Personal protective equipment:

- **Ventilation System:** A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.
- **Respiratory protection** (NIOSH Approved): If the exposure limit is exceeded, a half-face dust/mist respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator.
- **Eye protection:** Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.
- **Skin protection:** Wear appropriate protective clothing. Avoid skin contact with the spilled product.

WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

9 PHYSICAL AND CHEMICAL PROPERTIES

General Information:	
Physical State	solid
Appearance	black granules
Odor	odorless
Granule size	0.6 - 1.4 mm
Flash point:	N/A
Melting point:	N/A
Bulk density:	1060 kg/m ³
Solubility in water at 20°C:	Not soluble

10 STABILITY AND REACTIVITY

- **Stability:** Stable under ordinary conditions of use and storage
- **Materials to avoid:** Manganese Dioxide is a powerful oxidizing agent, therefore it should not be heated or rubbed with organic matter or other easily oxidizable substances such as sulfur, magnesium, powder of zinc or aluminum, etc. Act as a catalyst in hydrogen peroxide fast decomposition. Keep away from heat and flammable materials.
- **Conditions to Avoid:** Dusting and incompatibles

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- **Hazardous decomposition products:** If stored and handled properly – none known.

11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Zeolite / Clinoptilolite:

Acute toxicity (LD/LC₅₀ values relevant for classification):

Oral LD₅₀, rat: N/A [dosage 20,000 mg/kg (max.) didn't show any adverse effect]

Dermal LD₅₀, rat: N/A [dosage 5,000 mg/kg (max.) didn't show any adverse effect]

Manganese Dioxide:

Acute toxicity (LD/LC₅₀ values relevant for classification):

Oral LD₅₀, rat: 3478 mg/kg

Dermal (subcutaneous) LD₅₀, rat: 422 mg/kg

Chronic toxicity (LD/LC₅₀ values relevant for classification):

Inhalation LD₅₀, rat: 1.82 mg/m³, 34 hours/35 days

Hydrated Lime:

Acute toxicity (LD/LC₅₀ values relevant for classification):

Oral LD₅₀, rat: 7340 mg/kg

12 ECOLOGICAL INFORMATION

- **Eco toxicity:** No data available. Presents no hazard to the environment.
- **Environmental fate:** No data available

The product has not been tested. The statement has been derived from the properties of the individual components.

13 DISPOSAL CONSIDERATIONS

- **General Information:** This product as manufactured, is not a RCRA, listed hazardous waste and does not exhibit any characteristics of a hazardous waste, including toxicity.
- **Component Waste number:** No EPA Waste Numbers are applicable for this product's components.
- **Recommendation:** Disposal must be made according to official regulations.
- **Disposal method:** This product is generally suitable for landfill disposal. Follow all applicable Federal, State, and local laws, rules, and regulations regarding the proper disposal of this material. If this product has been altered or contaminated with other hazardous materials, appropriate waste analysis may be necessary to determine proper method for disposal. A qualified environmental professional should determine waste characterization, disposal, and treatment methods for this material in accordance with applicable Federal, State and local regulations and requirements. Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14 TRANSPORT INFORMATION

- **Land Transport (ADR/RID/ADN):** Not classified as dangerous good under transport regulations
- **Sea Transport (IMDG/IMO):** Not classified as dangerous good under transport regulations
- **Air Transport (IATA/ICAO):** Not classified as dangerous good under transport regulations

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Katalox Light® is not classified as a hazardous material by US DOT and is not regulated by the Transportation of Dangerous Goods (TDG) when shipped by any mode of transport.

15 REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture
 Labeling according to Regulation (EC) No 1272/2008

The substance does not require classification or labeling under the CLP regulation.

Components listed in federal regulations:

Component	CAS No.	TSCA	RCRA	CERCLA	SARA 311/312	SARA 313	SARA 302
ZEOSORB	12173-10-3	Yes	No	No	immediate health	No	No
Manganese dioxide	1313-13-9	Yes	No	Yes	Yes (as compound)	No	No
Hydrated lime	1305-62-0	Yes	No	No	No	No	No

California Prop. 65 (Safe drinking water and Toxic Enforcement Act of 1986): There are no chemicals present known to the state of California to cause cancer or reproductive toxicity.

Components listed in international regulations

Component	CAS No.	AICS	DSL	ECL	EINECS	ENCS	Philippines
ZEOSORB	12173-10-3	Yes	No	-	Yes	Yes	-
Manganese dioxide	1313-13-9	Yes	Yes	Yes	Yes	Yes	Yes
Hydrated lime	1305-62-0	Yes	No	Yes	Yes	Yes	Yes

Not listed or not regulated by the following inventories: CDTA, Chemical Weapon Convention

NFPA Ratings

Component	CAS No.	Health	Flammability	Reactivity	Others
ZEOSORB	12173-10-3	1	0	0	-
Manganese dioxide	1313-13-9	2	0	0	Oxidizer
Hydrated lime	1305-62-0	2	0	0	alkaline

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16 OTHER INFORMATION

- This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product feature and shall not establish a legally valid contractual relationship.
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