

MATERIAL SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT and COMPANY IDENTIFICATION

PRODUCT NAME: TRAMFLOC® Activated Alumina

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SUPERSEDES: 08/25/99

DESCRIPTION: Activated Alumina, all grinds and porosities including 400G, FS50, A2, D201, A202HF

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SECTION 2 - COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	INGREDIENTS	CAS NUMBER
Activated Alumina	Aluminum oxide (non-fibrous)	1344-28-1
Water	Water	7732-18-5

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: In the fresh unused state, this product is not flammable. Repeated or prolonged exposure may irritate eyes, skin, and respiratory system. This product gets hot as it first adsorbs water.

EFFECTS OF OVEREXPOSURE - EYE CONTACT: Eye contact may produce irritation and/or redness.

EFFECTS OF OVEREXPOSURE - SKIN CONTACT: Exposure to dust particles generated from this product may cause mild skin irritation (after prolonged or repeated contact); symptoms can include redness, swelling, and itching. This product gets hot after it adsorbs water.

EFFECTS OF OVEREXPOSURE - INHALATION: Exposure to dust may cause respiratory irritation. Inhalation may be accompanied by coughing and chest discomfort.

EFFECTS OF OVEREXPOSURE: INGESTION: This product has a low order of oral toxicity.

EFFECTS OF OVEREXPOSURE: CHRONIC HAZARDS: Prolonged or repeated inhalation of dust may cause lung injury.

PRIMARY ROUTE OF ENTRY: Contact with skin and eyes. Exposure may also occur via inhalation or ingestion if product dust is generated.

SECTION 4 - FIRST AID MEASURES

INHALATION: Remove patient to fresh air. SKIN: Remove contaminated clothing and launder before reuse. Wash affected area with soap and water for at least 15 minutes.

EYE CONTACT: Flush with water at least 15 minutes with eyelids open. Call a physician.

INGESTION: Drink at least two glasses of water. Never give anything by mouth to an unconscious person. NOTE TO PHYSICIAN: The used product can contain material of a hazardous nature. Identify material and treat symptomatically.

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SECTIONS 5 - FIRE FIGHTING MEASURES

FLASHPOINT: NA; FLAMMABILITY: NA; AUTO FLAMMABILITY: NA

EXPLOSION HAZARD: This product in itself does not burn. The used product can retain material of a hazardous nature. Identify that material and inform the firefighters.

EXTINGUISHING MEDIA: Non-combustible. Use extinguishing media for surrounding fire.

EXTINGUISHING MEDIA WHICH MUST NOT BE USED: NA

SPECIAL PROTECTIVE EQUIPMENT FOR A FIRE: Self-contained breathing apparatus should be worn.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

ENVIRONMENTAL PRECAUTIONS: No special environmental precautions required.

METHODS FOR CLEANUP: Sweep, shovel or vacuum spilled product into appropriate containers (do not use a vacuum if material has contacted a hydrocarbon material). Pick up disposal without creating dust. Never used spilled product. Dispose of spilled product in accordance with all applicable governmental regulations.

PERSONAL PROTECTION: Handle in accordance with good industrial hygiene and safety practices.

SECTION 7 - HANDLING AND STORAGE

HANDLING: Handle and open container with care. Avoid formation of dust particles. Avoid contact with skin and eyes. Provide an electrical ground connection during loading and transfer operations to avoid static discharge in an explosive atmosphere and to prevent persons handling the product from receiving static shocks.

STORAGE: Store in original container and keep in a dry place.

SECTION 8 - EXPOSURE CONTROLS and PERSONAL PROTECTION

ENGINEERING CONTROLS: When natural ventilation is inadequate, especially in confined areas, use mechanical ventilation, other engineering controls or respiratory protection to prevent inhalation of product dust.

PERSONAL PROTECTIVE EQUIPMENT: Handle in accordance with good industrial hygiene and safety practices.

RESPIRATORY PROTECTION: In case of insufficient ventilation wear suitable respiratory equipment. In case of insufficient ventilation wear suitable respiratory equipment with filter classification: N-95 or if oil/liquid aerosols are present P-95 (42 CFR 84).

HAND PROTECTION: Wear impervious gloves. EYE PROTECTION: Wear chemical splash goggles or face mask.

SKIN PROTECTION: If clothing is contaminated, wash skin and launder clothing. NOTE: Before eating, drinking or smoking, wash face and hands thoroughly with soap and water.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE, COLOR AND ODOR: White free flowing dry powder with little or no odor.

pH as is: NA; MELTING POINT/RANGE: NA; SPECIFIC GRAVITY: 0.8-1.0

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WATER SOLUBILITY: Completely soluble; DENSITY: 50-60 lb/ft³; FORM: Spheres COLOR: White ODOR: None
pH: 9 -11-(Aqueous slurry) BOILING POINT: NA Melting Point: NA Flash Point: NA AUTO IGNITION
TEMPERATURE: NA BULK DENSITY: 40 - 60 lbs./ft³ EXPLOSION LIMITS: NA VAPOR PRESSURE: NA
RELATIVE DENSITY/SPECIFIC GRAVITY: 3.0 (water= 1.0) VAPOR DENSITY: NA VISCOSITY: NA
WATER SOLUBILITY: Not determined SOLUBILITY: Not determined

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: Stable CONDITIONS/MATERIALS TO AVOID: Reacts violently with chlorine trifluoride, producing flames. May cause ethylene oxide to polymerize violently, releasing heat.

HAZARDOUS DECOMPOSITION: No decomposition if used as directed. Hydrocarbons and other materials that contact the product during normal use can be retained on the product. It is reasonable to expect that decomposition products will come from these retained materials of use. If the product is subject to extreme temperatures or chemical conditions, decomposition may occur and the product will include the oxides shown in Section 2.

SECTION 11 - TOXICOLOGICAL INFORMATION

ACUTE TOXICITY: LD50/ORAL/RAT: No data available. LD50/DERMAL/RABBIT: No data available.
LC50/INHALATION/RAT: No data available. CHRONIC TOXICITY: Classification of ingredients. EC
CARCINOGENIC: None listed. EC MUTAGENIC: Not listed. EC TOXIC FOR REPRODUCTION: Not listed.
CARCINOGENICITY (ACGIH): Aluminum Oxide. IARC CLASSIFICATION: Not listed. ROUTES OF EXPOSURE:
Exposure may occur via inhalation, contact with skin and eyes. IRRITATION: SKIN (RABBIT): No data available.
EYE (RABBIT): No data available. ADDITIONAL PRODUCT INFORMATION: Avoid repeated exposure.
ADDITIONAL COMPONENT INFORMATION: No data available.

SECTION 12 - ECOLOGICAL INFORMATION:

MOBILITY: No data available. BIODEGRADATION: No data available. BIOACCUMULATION: No data available.
AQUATIC TOXICITY: No data available. FURTHER INFORMATION: No information available.

SECTION 13 - DISPOSAL CONSIDERATIONS

PROVISIONS RELATING TO WASTE: EPA - Resource Conservation and Recovery Act (RCRA) Hazardous and Solid Waste Management Regulations. DISPOSAL INFORMATION: This product, in its fresh unused state, is not listed by generic name or trademark name in the U.S. EPA's RCRA regulations and does not possess any of the four identifying characteristics of hazardous waste (ignitability, corrosivity, reactivity or toxicity). Materials of a hazardous nature that contact the product during normal use may be retained on this product. The user of the product must identify the hazards associated with the retained material in order to assess the waste disposal options.

SECTION 14 - TRANSPORTATION INFORMATION

PROPER SHIPPING NAME: Not applicable. UN-NO,: Not applicable PACKAGING GROUP: Not applicable. U.S. DOT: Not regulated DOT SHIPPING NAME: NA HAZARDOUS CLASSIFICATION: Not applicable. IMO: Not regulated. EmS: Not applicable. MFAG: Not applicable. MARINE POLLUTANT: No ICAO - IATA: Not regulated. INSTRUCTION "Passenger": Not applicable. INSTRUCTION "CARGO": Not applicable. FURTHER INFORMATION: Not classified as hazardous or dangerous in the meaning of transport regulations.

SECTION 15 - REGULATORY INFORMATION United States

TOXIC SUBSTANCES CONTROL ACT (TSCA): All the ingredients of this mixture are registered on the TSCA

Product Name: TRAMFLOC® Activated Alumina

Chemical Substance Inventory. CERCLA: (COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT) REPORTABLE QUALITY: The following components of this product are subject to release reporting under 40 CFR 302 when release exceeds the Reportable Quantity (RQ): None

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986: Section 302 (Extremely Hazardous Substances): The following components of this product are subject to the emergency planning provisions of 40 CFR 355 when there are amounts equal to or greater than the Threshold Planning Quantity (TPQ): None

The following components are listed in the U.S. State Regulations:

STATE REGULATION REFERENCE	COMPONENTS
California - Proposition 65	None
Massachusetts Right-To-Know	Aluminum oxide
New Jersey Right-To-Know	Aluminum oxide
Pennsylvania Right To-Know	Aluminum oxide

Note: Other U.S. State Regulations may exist, check your local sources if available.

CANADA

CANADIAN HAZARDOUS PRODUCTS ACT: This product is not classified as a controlled product under regulations pursuant to the federal Hazardous Product Act (e.g. WHMIS). CANADIAN ENVIRONMENTAL PROTECTION ACT: All of the ingredients of this mixture are notified to CEPA and on the DSL (Domestic Substance List).

EUROPEAN UNION (EU)

EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES: All components of this product are included in EINECS/ELINCS. COUNCIL OF EUROPEAN COMMUNITIES DIRECTIVE ON CLASSIFICATION, PACKAGING AND LABELING OF DANGEROUS SUBSTANCES/PREPARATION (67/548/EEC & 88/379/EEC): No Dangerous Goods Label required.

SECTION 16 - CARCINOGENICITY CLASSIFICATION

INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC): Neither the product nor the components are classified. U.S. NATIONAL TOXICOLOGY PROGRAM (NTP): Neither the product nor the components are classified. U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA): Neither the product nor the components are classified or regulated.

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH):
Aluminum oxide - Not Classifiable as a Human Carcinogen.

SECTION 16 - OTHER INFORMATION

HMIS RATINGS: HEALTH: 1; FLAMMABILITY: 0; REACTIVITY: 1

The information contained herein is to the best of our knowledge and belief accurate. However, since the conditions of handling and use are beyond our control, Tramfloc, Inc. makes no guarantee for results obtained, and assumes no responsibility for damages incurred by use of this product. It is the responsibility of the user to comply with all federal, state, and local laws and regulations.