MATERIAL SAFETY DATA SHEET

MIXED NITRATING ACID (greater than 50% $HN0_3$)

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name:	Mixed Nitrating Acid, greater than 50% $HN0_3$
CAS Number:	51602-38-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Product use:	Industrial use only

1.3 Details of the supplier of the safety data sheet

Company name:	East Harbour Group Ltd Miranda House, The Quay Harwich, Essex, CO12 3HH United Kingdom
Telephone:	+44 (0) 333 242 0100
Email:	info@eastharbourgroup.com

1.4 Emergency telephone number

Emergency telephone:	0800 246 1274

Section 2: Hazardous identification

2.1 Classification of the substance or mixture

Oxidizing liquids, Category 1
Skin corrosion, Category 1A
Serious eye damage, Category 1

2.2 GHS Label elements, including precautionary statements

Pictogram(s)

Signal word	Danger
Hazard statement(s)	
H271	May cause fire or explosion, strong oxidizer.
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
Precautionary statement(s)	
Prevention	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P220	Keep away from clothing and other combustible materials.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P283	Wear fire resistant or flame-retardant clothing
P260	Do not breathe dust/fume/gas/mist/vapours/sprays
P264	Wash …. thoroughly after handling.
Response	
P306+P360	IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothing.

MIXED NITRATING ACID (greater than 50% $HN0_3$)

P371+P380+P375	In case of major fire and large quantities; Evacuate area. Fight fire remotely due to the risk of explosion.
P370+P378	In case of fire: Use … to extinguish
P301+P330+P331	IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water (or shower).
P363	Wash contaminated clothing before reuse
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P310	Immediately call a POISON CENTRE/Doctor
P321	Specific treatment (see… on this label)
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Storage	
P420	Store separately
Disposal	
P501	Dispose of contents/containers to ….

2.3 Other hazards which do not result in classification
None

Section 3: Composition/information on ingredients

Composition:
Mixed Nitric and Sulfuric Acid (Nitric Acid >50%)
Hazardous Ingredients:

Nitric Acid	CAS 7697-37-2	50% to 85%
Sulfuric Acid	CAS 7664-93-9	15% to 50%

Chemical Name	Common names & synonyms	CAS Number
Sulfonitric Mixed Acid	Sulfonitric Mixed Acid	51602-38-1

Section 4: First aid measures

4.1 Description of necessary first-aid measures.
General advice
EYE: Immediately flush with water for at least 15 minutes. Contact a physician immediately
SKIN: Immediately flush with large amount of water while removing contaminated clothing and shoes. Contact a physician immediately. Wash clothing before reuse.
INGESTION: Give large amounts of water. Do not induce vomiting. Contact a physician immediately. Never give anything by mouth to an unconscious person.
INHALATION: Remove to fresh air. Give artificial respiration or oxygen if needed. Contact a physician immediately. Observe for delayed effect.

4.2 Most important symptoms/effects, acute and delayed
No data available

4.3 Indication of immediate medical attention and special treatment needed, if necessary.
No data available

eastharbourgroup.com
info@eastharbourgroup.com +44 (0)333 242 0100

MIXED NITRATING ACID (greater than 50% $HN0_3$)

Section 5: Fire-fighting measures

FLAMMABLE PROPERTIES
Non-flammable. Nitric acid alone is not flammable, but it may cause ignition by contact with combustible liquids and solids.

5.1 Extinguishing media
EXTINGUISHING MEDIA
Use dry chemical or CO2 fire extinguisher. Do not use water on mixed acid directly. Evolution of heat and spattering will result. Use water spray to knock down vapours. Apply water from as far away as possible. Neutralize spilled material with crushed limestone, soda ash or lime.

5.2 Specific hazards arising from the chemical
FIRE AND EXPLOSION HAZARDS
Strong oxidizer. Hydrogen, a higher flammable and explosive gas, and sulphur trioxide and oxides or nitrogen, highly toxic gases, are generated by the action of the acid on most metals. Explosion may occur upon contact of mixed acid with materials such as nitrate, wood, cellulose, or other organic material. May react violently with water, spattering acid.
HAZARDOUS DECOMPOSITION PRODUCTS:
Mixed acid will react violently with most organic materials, for example wood, with the evolution of heat and dense, acrid fumes.

5.3 Special protective actions for fire-fighter
FIRE FIGHTING EQUIPMENT:
Wear self-contained breathing apparatus and full acid protective clothing including rubber boots. Thoroughly decontaminate equipment after use.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Evacuate area. Avoid all skin, eye, and respiratory exposure. Wear self-contained breathing apparatus and full body acid protection including rubber boots to enter spill area. Flush small leaks or spills with large quantities of water. If possible, contain large sills with diking and neutralize with limestone, soda ash or liquid caustic soda.

CAUTION: Neutralisation can produce vigorous reactions, boiling and fumes. Remain upwind, evacuate downwind. Cleaned-up material may be a RCRA Hazardous Waste. Comply with all federal state and local regulations for disposal of waste and reporting of release.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Section 7: Handling and storage

7.1 Precautions for safe handling
HANDLING:
Do not get in eyes, on skin, or on clothing.
Wear full protective equipment including chemical goggles, or face shield, rubber gloves and boots.
Do not inhale mist or vapour.

eastharbourgroup.com
info@eastharbourgroup.com +44 (0)333 242 0100

MIXED NITRATING ACID (greater than 50% $HN0_3$)

Handle only in areas with sufficient ventilation to prevent irritation or wear a respirator.
Keep well away from heat, sparks, and flame.
Do not ingest.
Wash thoroughly after handling.
Do not allow contact with water because of violent reaction.
When diluting, slowly add acid to water with stirring and mixing to avoid spattering, boiling or eruption. Water cannot be safely added to acid.
Emptied container retains vapour and product residue. Observe all safeguards until container is cleaned or reconditioned.

7.2 Conditions for safe storage, including any incompatibilities.
STORAGE:
Keep container tightly closed.
Outdoor storage in a cool, dry, corrosion proof area is recommended.
Keep containers out of sun and away from heat.
Isolate from incompatible materials.

Section 8: Exposure controls/personal protection

8.1 Control parameters
Occupational Exposure limit values
No data available

Biological limit values
No data available

8.2 Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

8.3 Individual protection measures, such as personal protective equipment (PPE)
RESPIRATORY PROTECTION:
Provide general and local exhaust ventilation to control exposure levels below airborne exposure limits. Local exhaust ventilation is the preferred primary control. Refer to the NIOSH/MSHA approved permissible respiratory protection. Do not use chemical cartridge respirators with oxidisable sorbents.
SKIN PROTECTION:
Wear impervious protective clothing to prevent skin contact, including an impervious apron, rubber boots or full impervious suit when splashing is possible. Provide a safety shower in the immediate vicinity of potential exposure.
EYE PROTECTION:
Wear chemical safety goggles or full-face shield to prevent eye contact. Use only in the proximity of an eye wash station.

EXPOSURE GUIDELINES:

	OSHA-PEL 8hr-TWA	ACGIH-TLV 8hr-TWA	ACGIH-STEL (15 MIN.)
Nitric Acid	2ppm	2ppm	4ppm
Sulphuric Acid	1 mg/m3	1 mg/m3	3 mg/m3

eastharbourgroup.com
info@eastharbourgroup.com +44 (0)333 242 0100

MIXED NITRATING ACID (greater than 50% $HN0_3$)

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Colourless to light yellow liquid
Odour	Acrid, choking odour
Flashpoint	Not applicable
pH	<1
Specific Gravity	1.5 to 1.8
% solids	Not applicable
% Volatiles	100%
Solubility	Miscible in water
Vapour Density (air=l)	
Nitric Acid	>1
Sulphuric Acid	3.4
Vapour Pressure (mm Hg):	
Nitric Acid (98%)	51mm Hg @ 25°C
Sulphuric Acid (98%)	<0.3mm Hg @ 252°C
Viscosity	
Nitric Acid (98%)	1.0 cp @ 20°C
Sulphuric Acid (98%)	25.0 cp @ 20°C
Freezing Point	
Nitric Acid (98%)	-42°F
Sulphuric Acid (98%)	+30°F (approx.)
Evaporation Rate (butyl acetate = 1):	>1

Section 10: Stability and Reactivity

STABILITY	Stable if properly contained and handled.
INCOMPATIBILITY	All organic materials are reducing agents. Addition of water to acid must be avoided.
HAZARDOUS DECOMPOSITION PRODUCTS	Nitric oxide fumes Sulphur dioxide fumes with elevated temperatures Hydrogen, a highly flammable and explosive gas, is generated by the action of acid on most metals. Mixed acid will react with most organic material with the evolution of heat and large quantities of acrid, dense, white fumes.
HAZARDOUS POLYMERISATION	Will not occur

Section 11: Toxicological Information

ACUTE:

Nitric acid is highly corrosive, fuming and suffocating. Diluted nitric acid can cause inhalation irritation, eye irritation, harden skip epithelium and causes skin irritation. Concentrated nitric acid may also severely burn and stain the skin, destroys skin tissue, and burn the eyes. Inhalation of nitric acid vapours can destroy lung tissue. Evidence of lung damage may not occur until 4-30 hours after initial exposure. Lung damage occurs in the form of edema which may be severe and sometimes fatal. Ingestion of nitric acid causes immediate pain and burning of the mouth, throat, and stomach. Symptoms range from nausea, vomiting, circulatory collapse to death.

eastharbourgroup.com
info@eastharbourgroup.com +44 (0)333 242 0100

MIXED NITRATING ACID (greater than 50% $HN0_3$)

Sulphuric acid produces severe burns and rapid corrosive destruction of body tissue. The severity of tissue damage, like nitric acid, is related to the strength of the acid and the duration of contact. Inhalation of sulphuric acid vapour or mist will cause severe damage to the respiratory tract and lungs. Repeated inhalation of low concentrations of sulphuric acid may cause bronchitis and inflammation of the nose and throat. Contact of sulphuric acid with the eyes causes severe damage which may lead to loss of sight. Ingestion can cause severe injury or death. Individuals with pre-existing diseases of the lungs may have increased susceptibility to the toxicity of mixed acid exposure.

CHRONIC
The International Agency for Research on Cancer (IARC) has classified “strong inorganic acid mists containing sulphuric acid” as Category 1 Carcinogen (Carcinogenic to Humans). This classification is for inhalation of strong inorganic acid mists only and does not apply to liquid sulphuric acid or solutions of sulphuric acid such as this product. The basis for the IARC classification rests on several epidemiological (human) studies which did not account for exposure to other substances, (i.e., smoking) and which included small numbers of subjects. Based on the overall weight of evidence, no definitive casual relationship between sulphuric acid mist and respiratory tract tumours has been shown. Neither nitric acid nor sulphuric acid is classified by OSHA or NTP as carcinogenic. Annual testing indicates that sulphuric acid does not have mutagenic, embryotoxic, or reproductive effects.

TARGET ORGANS
Eyes, mucous membranes, skin, and respiratory system.

Section 12: Ecological Information

This product should be considered as potentially hazardous to the environment. Avoid contamination of soil, drains and water during handling. The 96-hour LC50 in Bluegill Fish for sulphuric acid is 10.5ppm

Section 13: Disposal considerations

13.1 Disposal methods
This material should be treated as a corrosive hazardous waste in accordance with all applicable regulations. Cleaned-up material may also be a hazardous waste due to corrosivity. This product has a RCRA waste identification of D002-Corrosive as designated in 40CFR 261.22. The waste of this product is subject to the Land Disposal Restrictions under 40 CFR 268.
Caution: Neutralisation can produce vigorous reaction, boiling and fumes. See extreme caution in clean-up procedures.

Section 14: Transport Information

14.1 UN Number
ADR/RID UN1796
IMDG UN1796
IATA UN1796

14.2 UN Proper Shipping Name
ADR/RID: NITRATING ACID MIXTURE with more than 50% nitric acid
IMDG: NITRATING ACID MIXTURE with more than 50% nitric acid
IATA: NITRATING ACID MIXTURE with more than 50% nitric acid

eastharbourgroup.com
info@eastharbourgroup.com +44 (0)333 242 0100

MIXED NITRATING ACID (greater than 50% $HN0_3$)

US Department of Transportation:
(49 CFR 172.101)

Shipping Name:	Nitrating Acid Mixture
UN Number:	UN1796
DOT/IMO Hazard class:	8, 5.1
Packaging Group:	I
DOT Label/Placard:	Corrosive, Oxidizer
Quantity Limits:	
Passenger Aircraft or Railcar	FORBIDDEN
Cargo Aircraft	2.5 Litre
Vessel stowage	D
Packaging Authorisation	
Exceptions	None
Non-Bulk Packaging	49 CFR 173.158
Bulk Packaging	49 CFR 173.243
DOT Emergency Response Guide Number	157

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

Section 15: Regulatory Information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical Name	Common names and synonyms	CAS number	EC Number
SULFONITRIC MIXED ACID	SULFONITRIC MIXED ACID	51602-38-1	None
European Inventory of Existing Commercial Chemical Substances (EINECS)			Not listed.
EC Inventory			Not listed.
United States Toxic Substances Control Act (TSCA) Inventory			Not listed.
China Catalog of Hazardous chemicals 2015			Not listed.
New Zealand Inventory of Chemicals (NZIoC)			Not listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Not listed.
Vietnam National Chemical Inventory			Not listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Not listed.

CERCLA SUPERFUND, 40 CFR 117.302:
Under the Comprehensive Environmental Response, Compensation and Liability Act, a release of this product in excess of 1,000 pounds may require reporting to the National Response Centre.
SARA HAZARD CATEGORY:
Under Sections 311 and 312 of the Superfund Amendment and Reauthorisation Act of 1986 (SARA Title III) this product is considered to meet the following categories:

Fire Hazard	No
Sudden Release of Pressure	No
Reactivity Hazard	Yes
Acute Health Hazard	Yes
Chronic Health Hazard	Yes

SARA 313 Information:
This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorisation Act of 1986 (40 CFR Part 372): Nitric and Sulphuric Acid.

eastharbourgroup.com
info@eastharbourgroup.com +44 (0)333 242 0100

MIXED NITRATING ACID (greater than 50% $HN0_3$)

TOXIC SUBSTANCES CONTROL ACT (TSCA)
The ingredients of this product are listed on the TSCA Inventory.
OSHA
This material is considered highly hazardous by OSHA
STATE:
CALIFORNIA PROPOSITION 65:
This product contains the following chemicals known to the State of California to cause cancer or reproductive harm: None
PENNSYLVANIA RIGHT TO KNOW:
Hazardous Substances and Special Hazardous Substances on the List which must be identified are: Nitric and Sulphuric Acid.
NEW JERSEY:
Requires reporting the top five components by percent:

Nitric Acid	50% to 95%
Sulphuric Acid	15% to 50%

CANADA:
WHIMS
Under the requirements of the Workplace Hazardous Materials Information System, this material is a controlled substance classified as:

Class C – Oxidizing Material
Class D – Division 1, Subdivision B; Toxic Material
Class E – Corrosive

Section 16: Other Information

HAZARD RATINGS:

	HMIS	NFPA
Health	3	3
Flammability	0	0
Reactivity	1	1
Special Hazard	Oxidizer	Oxidizer

0 Minimal; 1 Slight; 2 Moderate; 3 Serious; 4 Severe

Abbreviations and acronyms

CAS	Chemical Abstracts Service
ADR	European Agreement concerning International Carriage of Dangerous Goods by Road
RID	Regulation concerning the International Carriage of Dangerous Goods by Rail
IMDG	International Maritime Dangerous Goods
IATA	International Air Transportation Association
TWA	Time Weighted Average
STEL	Short term exposure limit
LC50	Lethal Concentration 50%
LD50	Lethal Dose 50%
EC50	Effective Concentration 50%

Although the information and recommendations set forth herein (hereinafter “information) are presented in good faith and believed to be correct as of the date hereof, we make no representations as to the completeness or accuracy thereof.

eastharbourgroup.com
info@eastharbourgroup.com +44 (0)333 242 0100