SAFETY DATA SHEET MAPEP MaW Performance Standards

U.S. Department of Energy – Radiological and Environmental Sciences Laboratory **SDS DATE:** 07/31/2024

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: MAPEP Inorganic/Radionuclide Water Performance Standards

MANUFACTURER: U.S. Department of Energy
DIVISION: Radiological and Environmental Sciences Laboratory
ADDRESS: Idaho Falls, ID 83401-4149

EMERGENCY PHONE: 208-526-2532
CHEMTREC PHONE: 208-526-1515
FAX PHONE: 208-526-2548

CHEMICAL NAME: Nitric Acid, 10% (v/v)
CHEMICAL FAMILY: Acid, corrosive
CHEMICAL FORMULA: HNO_3

PRODUCT USE: Performance Evaluation Program – Analytical Standard
PREPARED BY: Radiological and Environmental Sciences Laboratory

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT: Nitric acid and water with trace inorganic and radionuclide constituents

CAS NO.		% VOL	SARA 313 REPORTABLE
7697-37-2	Nitric Acid	10	NA
7732-18-5	water	90	NA
Trace inorganic/radionuclide		NA	NA

Chemical Name	ACGIH	NIOSH	OSHA-Final PELs
Nitric Acid	2 ppm ; 5.2 mg/m^3; 4 ppm STEL; 10 mg/m^3 STEL	2 ppm TWA, 5 mg/m^3 TWA; 25 ppm IDLH	2 ppm TWA; 5 mg/m3 TWA
Water	None listed	None listed	None listed
Nitrogen dioxide	3 ppm; 5.6 mg/m^3; 5 ppm STEL; 9.4 mg/m^3 STEL	20 ppm IDLH	C 5 ppm; C 9 mg/m^3

SECTION 2 NOTES: Trace inorganic and radionuclides constitutes less than 1% composition by weight.
MAPEP samples are typically not classified as radioactive (total activity < 2 nCi/gram).

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: May be harmful by inhalation, skin absorption or ingestion. Flush thoroughly with water for external contact.

ROUTES OF ENTRY: May be harmful by inhalation, skin absorption or ingestion.

POTENTIAL HEALTH EFFECTS

EYES: Can cause eye irritation.
SKIN: Can cause skin irritation. May cause skin discoloration.
INGESTION: Causes gastrointestinal tract burns. May cause perforation of the digestive tract.
INHALATION: Effects may be delayed. May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. Prolonged exposure to low concentrations of the vapor may lead to chronic bronchitis and/or loss of appetite.

SECTION 4: FIRST AID MEASURES

In case of contact:

EYES: Flush eyes continuously with water for 15 – 20 minutes.
SKIN: Flush skin continuously with water for 15 – 20 minutes. If no burns have occurred, use soap and water to cleanse skin.
INGESTION: Do not administer liquids or induce vomiting to an unconscious or convulsing person. Get medical attention immediately.
INHALATION: If inhaled, remove patient to fresh air.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: Administer oxygen if patient is having difficulty breathing. If patient has stopped breathing administer artificial respirations. If patient is in cardiac arrest administer CPR. Continue life supporting measures until medial assistance has arrived. Remove and wash contaminated clothing. If patient is exhibiting signs of shock – keep warm and quiet. If patient is vomiting – watch closely to makes sure airway does not become obstructed by vomit.

SECTION 4 NOTES: An antidotes is a substance intended to counteract the effect of a poison. It should be administered by a physician for trained emergency personnel. Medial advise can be obtained from a physician or trained emergency personnel. Medical advise can be obtained from a POISON CONTROL CENTER. For the main carrier: 10% nitric acid.

SECTION 5: FIRE-FIGHTING MEASURES

For the carrier – 10% nitric acid in water.

The main product is non-flammable.

FLASH POINT: ˚C: NA
AUTOIGNITION TEMPERATURE: ˚C: NA

NFPA HAZARD CLASSIFICATION
HEALTH: 3 **FLAMMABILITY: 0** **REACTIVITY: 0**

EXTINGUISHING MEDIA: Substance is noncombustible; use agent most appropriate to extinguish surrounding fire. DO NOT use straight streams of water. Cool containers with flooding quantities of water until well after fire is out.

SPECIAL FIRE FIGHTING PROCEDURES: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent) and full protect gear. Strong oxidizer. Use water spray to keep fire-exposed containers cool. Substance is noncombustible. Vapors may accumulate in confined spaces.

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES: Use proper personal protective equipment as indicated in Section 8.

SECTION 6 NOTES: For spills/leaks: Absorb spill with inert material, (e.g., dry sand or earth), then place into a chemical waste container. Neutralize spill with sodium bicarbonate. Use water spray to disperse the gas/vapor. A vapor suppressing foam may be used to reduce vapors.

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well ventilated area. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Store in a cool, dry, well-ventilated area away from incompatible substances.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

RESPIRATORY PROTECTION: Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions. Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard 149 approved respirator when necessary.

EYE PROTECTION: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

SKIN PROTECTION: Wear appropriate protective gloves and clothing to prevent skin exposure.

EXPOSURE GUIDELINES:

Chemical Name	ACGIH	NIOSH	OSHA-Final PELs
Nitric Acid	2 ppm ; 5.2 mg/m^3; 4 ppm STEL; 10 mg/m^3 STEL	2 ppm TWA, 5 mg/m^3 TWA; 25 ppm IDLH	2 ppm TWA; 5 mg/m3 TWA
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Nitrogen dioxide	3 ppm; 5.6 mg/m^3; 5 ppm STEL; 9.4 mg/m^3 STEL	20 ppm IDLH	C 5 ppm; C 9 mg/m^3

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: clear
ODOR: mild acid smell
PHYSICAL STATE: Liquid
pH AS SUPPLIED: <2
BOILING POINT: 100˚**C**
MELTING POINT: Not Available
FREEZING POINT: ~-44˚**F**

VAPOR PRESSURE (mmHg): 62 @ 25˚C
VAPOR DENSITY (AIR = 1): estimated at 2.2 based on nitric acid**.**
SPECIFIC GRAVITY (H2O = 1): 1.53 @ 25˚C
EVAPORATION RATE: not available
SOLUBILITY IN WATER: soluble in water
PERCENT SOLIDS BY WEIGHT: <1%
PERCENT VOLATILE: not available
VOLATILE ORGANIC COMPOUNDS (VOC): <0.1%
VISCOSITY: 0.761 cP @ 25˚C:

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable under normal temperatures and pressures.
CONDITIONS TO AVOID (STABILITY): Incompatible materials, organic materials, reducing agents.

INCOMPATIBILITY (MATERIAL TO AVOID): Acids (organic, e.g. acetic acid, benzoic acid, formic acid, methanoic acid, oxalic acid), alcohols and glycols (e.g. butyl alcohol, ethanol, methanol, ethylene glycol), aldehydes (e.g.. acetaldehyde, acrolein, chloral hydrate, formaldehyde), amides (e.g. butyramide, diethyltoluamide, dimethyl formamide), amines (aliphatic and aromatic, e.g. dimethyl amine, propylamine, pyridine, triethylamine), azo, diazo, and hydrazines (e.g. dimethyl hydrazine, hydrazine, methyl hydrazine), carbamates (e.g. carbanolate, carbofuran), caustics (e.g. ammonia, ammonium hydroxide, calcium hydroxide, potassium hydroxide, sodium hydroxide), cyanides (e.g. potassium cyanide, sodium cyanide), dithocarbamates (e.g. ferbam, maneb, metham, thiram), esters (e.g. butyl acetate, ethyl acetate, propylformate), ethers (e.g. dioxane, furfuran, tetrahydrofuran (THF)), fluorides (inorganic, e.g. ammonium fluoride, calcium fluoride, cesium fluoride), hydrocarbons (aromatic, e.g. benzene, chrysene, cumene, toluene), halo.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Nitrogen oxides, nitrogen.
HAZARDOUS POLYMERIZATION: Has not been reported.

SECTION 11: TOXICOLOGICAL INFORMATION

Nitric acid: Inhalation rat LC50: 244 ppm
(NO2)/30M; Investigated as a mutagen, reproductive effector.
Oral (human) LDL: 430 mg/kg.

--------\Cancer Lists\----------

Ingredient	---NTP Carcinogen--- Known	Anticipated	IARC Category
Nitric Acid (7697-37-2)	No	No	None
Water (7732-18-5)	No	No	None

SECTION 12: ECOLOGICAL INFORMATION

Environmental Fate: No information found.

Environmental Toxicity: Environmental Toxicity: No information found

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations.

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

Dispose of container and unused contents in accordance with federal, state and local requirements.

RCRA HAZARD CLASS: Corrosive

SECTION 14: TRANSPORT INFORMATION

Domestic (Land, D.O.T.)
Proper Shipping Name: NITRIC ACID (WITH NOT MORE THAN 70% NITRIC ACID)
Hazard Class: 8
UN/NA: UN2031
Packing Group: II
Information reported for product/size: 1.0 L

International (Water, I.M.O.)
Proper Shipping Name: NITRIC ACID
Hazard Class: 8
UN/NA: UN2031
Packing Group: II
Information reported for product/size: 1.0 L

SECTION 15: REGULATORY INFORMATION

--------\Chemical Inventory Status ----------

Ingredient	TSCA	EC	Japan	Australia	Korea	-Canada- DSL	NDSL	Phil.
Nitric Acid (7697-37-2)	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

SECTION 15: REGULATORY INFORMATION (continued)

--------\Federal, State & International Regulations ----------

	-SARA 302-		------SARA 313------			-RCRA-	-TSCA-
Ingredient	**RQ**	**TPQ**	**List**	**Chemical Catg.**	**CERCLA**	**261.33**	**8(d)**
Nitric Acid (7697-37-2)	**1000**	**1000**	**Yes**	**No**	**1000**	**No**	**No**
Water (7732-18-5)	**No**	**No**	**No**	**No**	**1000**	**No**	**No**

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No
Reactivity: No (Mixture / Liquid)

Australian Hazchem Code: 2PE
Poison Schedule: S6
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

SECTION 16: OTHER INFORMATION

OTHER INFORMATION:
NFPA Ratings: Health: 3 Flammability: 0 Reactivity: 0 Other: Oxidizer

Label Hazard Warning: POISON! DANGER! OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. CORROSIVE. LIQUID AND MIST MAY CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED OR INHALED. INHALATION MAY CAUSE LUNG AND TOOTH DAMAGE.

Label Precautions:
Do not get in eyes, on skin, or on clothing.
Do not breathe vapor or mist.
Use only with adequate ventilation.
Wash thoroughly after handling.
Keep from contact with clothing and other combustible materials.
Do not store near combustible materials.
Store in a tightly closed container.
Remove and wash contaminated clothing promptly.

Label First Aid:
In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In all cases get medical attention immediately.

PRODUCT USE: Laboratory Use Only – RESEARCH.

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