

This product is classified as Hazardous according to the criteria of Worksafe Australia

1. Identification

Product Name(s) Gold Testing Solutions: 8K to 22K strength, Platinum Testing

Product Code(s) TS-Au: 8K – 22K solutions; TS-Pt

Recommended Use(s) Gold Purity Testing (Karat); Platinum Testing

Manufacturer Digital Sciences
ABN 86 773 289 785
c/o Seaguard Chemicals Pty. Ltd.
6 / 130-132 Bayfield Rd. East,
Bayswater North, Victoria, Australia 3153
Mob: +61 419 500 1775

Business Hours: 8.30 am – 5.00pm, Monday to Friday

Emergency Contacts

8.30 am – 5.00pm Digital Sciences
Monday to Friday Mobile/Cell: +61 419 500 1775

Australia wide, 24 hours; 13 11 26, Poison Information

2. Hazards Identification

Classification of the Substance or Mixture:

Acute toxicity - Gases (Category 4)
Oxidizing liquids (Category 3)
Serious eye damage (Category 1)
Skin corrosion / irritation (Category 1)
Serious eye damage / Eye irritation (Category 1)
Specific target organ systemic toxicity (single exposure) (Category 3)

Risk Phrases:

Symbol: O, C
R8: Contact with combustible material may cause fire.
R34: Causes burns.
R35: Causes severe burns.
R37: Irritating to respiratory system.

Label Elements:

Trade Name: Gold Test Solution: 8K to 22K strength
Signal Word: Danger



Hazard Statements:

H272: May intensify fire; oxidizer.

H314: Causes severe skin burns and eye damage.

H335+336: May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary Statements:

P220: Keep / Store away from clothing / combustible materials.

P261: Avoid breathing dust / fume / gas / mist / vapours / spray.

P280: Wear protective gloves / protective clothing / eye protection / face protection.

P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.

P310: Immediately call a POISON CENTER or doctor / physician.

3. Composition / Information on Ingredients

CAS Number: Not applicable to mixtures

EC Number: Not applicable to mixtures

Molecular Weight: Not applicable to mixtures

Ingredient	CAS Number	EC Number	Composition %	Hazardous	Chemical Characterisation
Nitric Acid	7697-37-2	231-595-7	30 - 50	Yes	Substance
Hydrochloric Acid	7647-01-0	231-714-2	0 - 10	Yes	Substance
Water	7732-18-5	231-791-2	40 - 70	No	Mixture

4. First-Aid Measures**GENERAL INFORMATION**

Immediate first aid treatment reduces the health effects of this substance. In all cases, immediately call a POISON CENTER or doctor / physician. **Caution:** Always consider any dangers within the vicinity of rendering aid. First aid personnel must be aware of own risk and protect themselves with all necessary personal protective equipment during the assistance of casualties.

Place unconscious person on the side in the recovery position and ensure breathing can take place. Never give anything by mouth to an unconscious person. If medical assistance is needed take as much detail as possible about the incident and hazardous materials involved with the casualty

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give Oxygen.

Call a physician.

In case of breathing is difficulty, qualified, trained personnel may administer oxygen. If patient needs resuscitation avoid mouth to mouth contact. **Warning:** It may be hazardous to the person providing artificial respiration when the inhaled material is toxic, infectious, or corrosive. A mechanical device e.g., a bag and mask can be used to provide artificial respiration.

Ingestion: DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Get medical attention immediately. Wash any contaminated clothing and/or shoes before reuse.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids

occasionally. Get medical attention immediately

Chronic: Long-term exposure to concentrated vapours may cause erosion of teeth and lung damage. Long-term exposures seldom occur due to the corrosive properties of the acid.

Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders, eye disease, or cardiopulmonary diseases may be more susceptible to the effects of this substance

5. Fire Fighting Measures

Fire: Not combustible, but concentrating the mixture may form a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. Use fire-extinguishing media appropriate for surrounding materials. Can react with metals to release flammable Hydrogen gas.

Explosion: Upon concentrating, may react explosively with combustible organic or readily oxidizable materials such as: alcohols, turpentine, charcoal, organic refuse, metal powder, Hydrogen Sulfide, etc. Reacts with most metals to release Hydrogen gas which can form explosive mixtures with air.

Fire Extinguishing Media: Water spray may be used to keep fire exposed containers cool. Do not get water inside container.

Special Information: If mixture is concentrated, may increase the flammability of combustible, organic and readily oxidizable materials. In case of fire, toxic and corrosive gases including oxides of nitrogen, chlorine and chlorine compounds can be formed. In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

Specific Hazards: If mixture is concentrated, may increase the flammability of combustible, organic and readily oxidizable materials. In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

Environmental Precautions and Methods and Materials for Containment and Cleaning Up: Contain and recover liquid when possible. Do not let product enter drains. Neutralize with alkaline material (soda ash, lime,) then absorb with an inert material (e. g., vermiculite, dry sand, earth,) and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! Avoid unauthorised discharge to the environment. Large spillages or uncontrolled discharge to water systems must be alerted to the Environmental Protection Agency or other regulatory body. If spillages to land cannot be treated safely or if contamination will occur the Environment Agency must be alerted immediately. If the mixture has entered a foul drain or sewage system in significant amounts to cause a hazard, then the local water treatment company must be informed.

Large Spillages: Dam and absorb spillages with sand, earth or other inert, non-combustible material. Collect spillage in containers, seal securely and deliver for disposal according to local regulations. Flush area clean with lots of water. Be aware of potential for surfaces to become slippery. Containers with collected spillage must be properly labelled with correct contents and hazard symbol. Wash thoroughly after dealing with a spillage.

7. Handling and Storage

Precautions for Safe Handling and Conditions for Safe Storage, Including Any Incompatibilities: Store in a cool, dry, ventilated storage area with acid resistant floors and good drainage. Protect from physical damage. Keep out of direct sunlight and away from heat, water, and incompatible materials. Do

not wash out container and use it for other purposes. When diluting, the acid should always be added slowly to water and in small amounts. Never use hot water and never add water to the acid. Water added to acid can cause uncontrolled boiling and splashing. Containers of this material may be hazardous when empty since they retain product residues (vapours, liquid.) Observe all warnings and precautions listed for the product.

8. Exposure Controls | Personal Protection

Airborne Exposure Limits:

For Nitric Acid:

OSHA Permissible Exposure Limit (PEL): 2 ppm (TWA), 4 ppm (STEL)

ACGIH Threshold Limit Value (TLV): 2 ppm (TWA); 4 ppm (STEL)

For Hydrochloric Acid:

OSHA Permissible Exposure Limit (PEL): 5 ppm (Ceiling)

ACGIH Threshold Limit Value (TLV): 2 ppm (Ceiling), A4 Not classifiable as a human carcinogen

Personal protective equipment: Gas mask. Gloves. Safety glasses.



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.

Personal Respirators (NIOSH Approved): If the exposure limit is exceeded and engineering controls are not feasible, wear a supplied air, full face piece respirator, air-lined hood, or full-face piece self-contained breathing apparatus. Breathing air quality must meet the requirements of the OSHA respiratory protection standard (29CFR1910.134). Nitric Acid is an oxidizer and should not come in contact with cartridges and canisters that contain oxidizable materials, such as activated charcoal. Canister-type respirators using sorbents are ineffective.

Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection: Use chemical safety goggles and I or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance: Clear, colourless solution

Odour: Pungent odour

Odour Threshold: Not determined

pH: < 1

% Volatiles by volume @ 21C (70F): 100 (as water and acid)

Melting Point: No information found

Boiling Point / Boiling Range: No information found

Flash Point: Not applicable

Evaporation Rate (BuAC=1): No information found

Flammability: Not applicable

Upper / Lower Flammability or Explosive Limits: Not applicable

Vapor Pressure (mm Hg): No information found Vapor Density (Air=1): No information found Relative Density: No information found Solubility: Infinitely soluble
Partition Coefficient: n-octanol / water: No data available Auto-ignition Temperature: No data available
Decomposition Temperature: No data available
Viscosity: No information found

10. Stability and Reactivity

Reactivity and/or Chemical Stability: Stable under ordinary conditions of use and storage. Containers may burst when heated.

Possibility of Hazardous Reactions and Conditions to Avoid: Light, heat and incompatibles.

Incompatible Materials: If mixture is concentrated may become a dangerous oxidizing agent, solutions containing Nitric Acid are incompatible with most substances, especially strong bases, metallic powders, carbides, Hydrogen Sulfide, turpentine, and combustible organics.

Hazardous Decomposition Products: If mixture is concentrated may become a dangerous oxidizing agent, solutions containing Nitric Acid are incompatible with most substances, especially strong bases, metallic powders, carbides, Hydrogen Sulfide, turpentine, and combustible organics.

11. Toxicological Information

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

Potential Health Effects:

Nitric Acid is extremely hazardous; it is corrosive, reactive, an oxidizer, and a poison. Hydrochloric Acid is a corrosive. The mixture of Nitric and Hydrochloric acids produces toxic and corrosive gases such as nitrosyl chloride, chlorine and oxides of nitrogen.

Inhalation: Corrosive! Inhalation of vapours can cause breathing difficulties and lead to pneumonia and pulmonary oedema, which may be fatal. Other symptoms may include coughing, choking, and irritation of the nose, throat, and respiratory tract.

Ingestion: Corrosive! Swallowing Nitric Acid can cause immediate pain and burns of the mouth, throat, oesophagus and gastrointestinal tract.

Skin Contact: Corrosive! Can cause redness, pain, and severe skin burns. Concentrated solutions cause deep ulcers and stain skin a yellow or yellow-brown colour.

Eye Contact: Corrosive! Vapours are irritating and may cause severe damage to the eyes. Contact may cause severe burns and permanent eye damage.

Chronic Exposure: Long-term exposure to concentrated vapours may cause erosion of teeth and lung damage. Long-term exposures seldom occur due to the corrosive properties of the acid.

Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders, eye disease, or cardiopulmonary diseases may be more susceptible to the effects of this substance.

Specific Target Organ Toxicity - Single Exposure (Globally Harmonized System:) The substance or mixture is classified as specific target organ toxicant, single exposure, Category 3 with respiratory tract irritation.

Specific Target Organ Toxicity - Repeated Exposure (Globally Harmonized System:) No data available.

Numerical Measures of Toxicity: Cancer Lists: NTP Carcinogen

Ingredient	Known	Anticipated	IARC Category
Nitric Acid (7697-37-2)	No	No	None
Hydrogen Chloride (7647-01-0)	No	No	3
Water (7732-18-5)	No	No	None

Acute Toxicity:

Nitric Acid: Oral (human) LDLo: 430 mg/Kg; Inhalation,(rat) LC50: 67 ppm (NO₂)_{4H}; Investigated as a mutagen, reproductive effector.

Hydrochloric Acid: Inhalation (rat) LC50: 3124 ppm_{1H}; Oral rabbit LD50: 900 mg/Kg; Investigated as a Tumorigenic, mutagen, reproductive effector.

12. Ecological Information

ECOTOXICITY: The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

Component	Toxicity			
	<i>Nitric Acid</i>	LC50	Shrimp	100-300 ppm
	LC100	Trout	10 mg/L	24 Hr.
	TLm	Mosquito Fish	282 ppm	96 Hr.

Persistence and Degradability: When released into the soil, this material is not expected to biodegrade and may leach into groundwater.

Bio-accumulative Potential: No further relevant information available.

Mobility in Soil: No data available.

Other adverse effects: EPA require reporting spills and releases to soil, water and air in excess of reportable quantities. Report any such pills to your local council, government or the EPA in your local jurisdiction if unable to contain, isolate / neutralise and remove the spill safely.

13. Disposal Considerations

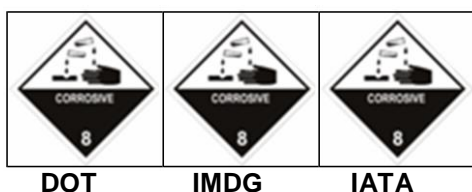
Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements.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

14. Transport Information

UN Number: UN3264

UN Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, n.o.s. (Nitric Acid and Hydrochloric Acid)

Packing Group: II



Land Transport ADRIRID and GGVSIGVE (Cross Border/Domestic) Transport Hazard Class(es): 8

Maritime Transport IMDG /GGVSea

Transport Hazard Class(es): 8

Marine Pollutant: No

Air Transport ICAO-TI and

IATA-DGR Transport Hazard

Class(es): 8

Transport in Bulk According to Annex II of MARPOL 73178 and the IBC Code

Special Precautions for User: No additional information

15. Regulatory Information

Chemical Inventory Status – Part 1

Ingredient	TSCA	EC	Japan	Australia
Nitric Acid (7697-37-2)	Yes	Yes	Yes	Yes
Hydrogen Chloride (7647-01-0)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

Chemical Inventory Status – Part 2

Ingredient	Korea	Canada		Phil.
		DSL	NDSL	
Nitric Acid (7697-37-2)	Yes	Yes	No	Yes
Hydrogen Chloride (7647-01-0)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

Federal, State & International Regulations ' Part 1

Ingredient	SARA 302		SARA 313	
	RQ	TPQ	List Chemical	Catg.
Nitric Acid (7697-37-2)	1000	1000	Yes	No
Hydrogen Chloride (7647-01-0)	5000	500	Yes	No
Water (7732-18-5)	No	No	No	No

Federal, State & International Regulations ' Part 2

Ingredient	RCRA		TSCA	
	CERCLA	261.33	8(d)	
Nitric Acid (7697-37-2)	1000	No	No	
Hydrogen Chloride (7647-01-0)	5000	No	No	
Water (7732-18-5)	No	No	No	

Chemical Weapons Convention: No	TSCA 12(b): No		CDTA: No
SARA 3111312:	Acute: Yes	Chronic: Yes	Fire: No
Reactivity: No	Mixture 1 Liquid		

16. Other Information

Effective Date: 24-01-2021 – V 1.3 Updated SDS template

Replaces Revision: V1.2 - GHS Compliant - Initial Release

Prepared / Revised By: R. Engelhardt

Source Information	Chemical	CasNo.	Revision Date
Mallinckrodt Baker, Inc.	Nitric Acid	7697-37-2	2/15/2008
Science Laboratory	Nitric Acid	7697-37-2	11/1/2008
CEPP	Nitric Acid	7697-37-2	3/5/2009
OSHA	Nitric Acid	7697-37-2	3/5/2009



Safety Data Sheet

Gold Test Solution, Platinum Test Solution

Controlled Document: DS_TS-Au-Ptk-SDS V1.3.Docx Rev 1.3

Release Date: 24-Jan-21

EMD Chemicals Inc	Nitric Acid	7697-37-2	3/27/2003
Mallinckrodt Baker, Inc.	Potassium Dichromate	7778-50-9	6/9/2005
Science Laboratory	Potassium Dichromate	7778-50-9	11/1/2008

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