Conforms to ANSI Z400.1-2004 Standard (United States).

TECHNAFLORA PLANT PRODUCTS LTD.

Material Safety Data Sheet

pH Down

1 . Product and company identification

Common name : **pH Down**

Material uses : pH control.

Supplier/Manufacturer : Technaflora Plant Products Ltd.
7261 River Place, 101
Mission, B.C.
Canada, V4S 0A2
Tel. 604-826-4759 / 1-800-586-1211

In case of emergency : CHEMTREC, U.S. : (800) 424-9300 International: (703) 527-3887

2 . Hazards identification

Physical state : Liquid.

Odor : Odorless.

Color : Colorless.

Hazard status : This material is classified as hazardous under OSHA regulations.

Emergency overview : DANGER !

CAUSES SEVERE RESPIRATORY TRACT, EYE AND SKIN BURNS.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS: LUNGS, MUCOUS MEMBRANES, RESPIRATORY TRACT, SKIN, ENDOTHELIUM, EYE, LENS OR CORNEA, TEETH.

Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Eyes : Severely corrosive to the eyes.

Skin : Severely corrosive to the skin.

Inhalation : Severely corrosive to the respiratory system.

Ingestion : May cause burns to mouth, throat and stomach.

Potential chronic health effects : Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.
Mutagenic effects: Not available.
Teratogenic effects: Not available.

Medical conditions aggravated by over-exposure : Repeated skin exposure can produce local skin destruction or dermatitis. Repeated or prolonged exposure to the substance can produce lung damage. Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to the substance can produce target organ damage.

See toxicological information (section 11)

3 . Composition/information on ingredients

United States

Name	CAS number	%
Nitric Acid	7697-37-2	5 - 10

4 . First aid measures

Eye contact : Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 20 minutes. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 20 minutes. Get medical attention immediately.

Inhalation : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion : Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Notes to physician : No specific antidote. Medical staff must contact Poison Control Center.

5 . Fire-fighting measures

Flammability of the product : Non-flammable.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : No specific hazard.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

Personal precautions : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.

Environmental precautions : Avoid dispersal of spilled material, runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up : If emergency personnel are unavailable, contain spilled material. For small spills, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

7 . Handling and storage

Handling : Do not get in eyes or on skin or clothing. Keep container closed. Use only with adequate ventilation. Do not breathe vapor or mist. Wash thoroughly after handling.

Storage : Keep container tightly closed. Keep container in a cool, well-ventilated area.

8 . Exposure controls/personal protection

United States

Product name	Exposure limits
Nitric Acid	**ACGIH TLV (United States, 9/2004).** STEL: 10 mg/m³ 15 minute(s). Form: All forms. STEL: 4 ppm 15 minute(s). Form: All forms. TWA: 5.2 mg/m³ 8 hour(s). Form: All forms. TWA: 2 ppm 8 hour(s). Form: All forms. **NIOSH REL (United States, 12/2001).** STEL: 10 mg/m³ 15 minute(s). Form: All forms. STEL: 4 ppm 15 minute(s). Form: All forms. TWA: 5 mg/m³ 10 hour(s). Form: All forms. TWA: 2 ppm 10 hour(s). Form: All forms. **OSHA PEL (United States, 8/1997).** TWA: 5 mg/m³ 8 hour(s). Form: All forms.

TWA: 2 ppm 8 hour(s). Form: All forms.

ACGIH TLV (United States, 1/2004).

STEL: 10 mg/m³ 15 minute(s). Form: All forms.
STEL: 4 ppm 15 minute(s). Form: All forms.
TWA: 5.2 mg/m³ 8 hour(s). Form: All forms.
TWA: 2 ppm 8 hour(s). Form: All forms.

Engineering measures : Use only with adequate ventilation. If user operations generate dust, fumes, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal protection

Eyes : Face shield.

Skin : Synthetic apron. Boots.

Respiratory : Vapor respirator.

Hands : Nitrile rubber.

HMIS Code/Personal protective equipment : D

Personal protection in case of a large spill : Safety glasses, goggles or face shield. Impervious gloves. Full suit. Boots. Wear NIOSH-approved self-contained breathing apparatus or equivalent and full protective gear.

Hygiene measures : Wash hands, forearms and face thoroughly after handling compounds and before eating, smoking and using the lavatory and at the end of the day. Follow good industrial hygiene practice.

9 . Physical and chemical properties

Physical state : Liquid.

Color : Colorless.

Odor : Odorless.

pH : 0 to 0.5 [Acidic.]

Boiling/condensation point : The lowest known value is 83.89°C (183°F) (Nitric Acid). Weighted average: 98.39°C (209.1°F)

Melting/freezing point :

(24.6°F)

Relative density : Weighted average: 1.03 (Water = 1)

Vapor pressure : The highest known value is 6.5 to 7.3 kPa (49 to 55 mm Hg) (at 20°C) (Nitric Acid). Weighted average: 2.76 kPa (20.7 mm Hg) (at 20°C)

Vapor density : The highest known value is 0.62 (Air = 1) (Water).

Evaporation rate : 0.36 (Water) compared with Butyl acetate.

Solubility : Highly soluble in water.

10 . Stability and reactivity

Stability and reactivity : The product is stable.

Incompatibility with various substances : Reactive with oxidizing materials, metals and alkalis.

Hazardous polymerization : Will not occur.

Conditions of reactivity : None known.

11 . Toxicological information

Acute Effects

Eyes : Severely corrosive to the eyes.

Skin : Severely corrosive to the skin.

Inhalation : Severely corrosive to the respiratory system.

Ingestion : May cause burns to mouth, throat and stomach.

Potential chronic health effects : Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.
Mutagenic effects: Not available.
Teratogenic effects: Not available.

Target organs : Contains material which causes damage to the following organs: lungs, mucous membranes, upper respiratory tract, skin, endothelium, eye, lens or cornea, teeth.

12 . Ecological information

Environmental precautions : No known significant effects or critical hazards.

Products of degradation : These products are nitrogen oxides.

Toxicity of the products of biodegradation : The products of degradation are less toxic than the product itself.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material, runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional and local authority requirements.

14 . Transport information

NAERG : 157

Regulatory information	Proper shipping name	Class	UN number	PG	Label
UN / IMDG / IATA Classification	NITRIC ACID [other than red fuming, with not more than 70 percent nitric acid]	8	UN2031	II	
DOT Classification	NITRIC ACID [other than red fuming, with not more than 70 percent nitric acid]	8	UN2031	II	

15 . Regulatory information

United States

HCS Classification : Corrosive material
Target organ effects

U.S. Federal regulations : TSCA : All components listed.

SARA 302/304/311/312 extremely hazardous substances: Nitric Acid
SARA 302/304 emergency planning and notification: Nitric Acid
SARA 302/304/311/312 hazardous chemicals: Nitric Acid
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Nitric Acid: Fire hazard, reactive, Immediate (acute) health hazard

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: Nitric Acid

Clean Air Act (CAA) 112 accidental release prevention: Nitric Acid

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: Nitric Acid

SARA 313

		Product name	CAS number	Concentration
Form R - Reporting requirements	:	Nitric Acid	7697-37-2	5 - 10
Supplier notification	:	Nitric Acid	7697-37-2	5 - 10

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations : Pennsylvania RTK: Nitric Acid: (environmental hazard, generic environmental hazard)
Massachusetts RTK: Nitric Acid
New Jersey: Nitric Acid

California prop. 65: No products were found.

International lists : This product, (and its ingredients) is (are) listed on national inventories, or is (are) exempted from being listed, Australia (AICS), in Europe (EINECS/ELINCS), in Korea (TCCL), in Japan (METI), in the Philippines (RA6969).

16 . Other information

Label requirements (U.S.A.) : CAUSES SEVERE RESPIRATORY TRACT, EYE AND SKIN BURNS.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS: LUNGS, MUCOUS MEMBRANES, RESPIRATORY TRACT, SKIN, ENDOTHELIUM, EYE, LENS OR CORNEA, TEETH.

Hazardous Material Information System (U.S.A.) :

HMIS RATING

Health	*	3
Fire hazard		0
Physical Hazard		0
Personal protection		D

HAZARD RATINGS

4- Extreme
3- Serious
2- Moderate
1- Slight
0- Minimal
See section 8 for more detailed information on personal protection.

National Fire Protection Association (U.S.A.) :

References : ANSI Z400.1, MSDS Standard, 2004. - Manufacturer's Material Safety Data Sheet. - 29CFR Part1910.1200 OSHA MSDS Requirements. - 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG.

Date of issue : 09/02/2011
Date of previous issue : 08/31/2006
Date of previous issue : 06/30/2004
Version : 3

Notice to reader

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