

Material Safety Data Sheet

PBG Test Kit

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: PBG Test Kit

Catalog Numbers: TR52001

Use: This Kit is intended for the in vitro qualitative determination of porphobilinogen (PBG) in urine.

THERMO ELECTRON
189 - 199 Browns Rd
NOBLE PARK VIC 3174
AUSTRALIA
Tel: +61 3 9790 4100
Fax: +61 3 9790 4155
E-mail: info.clinicalchemistry@thermo.com

THERMO ELECTRON
331 South 104th Street
LOUISVILLE, CO 80027
U.S.A
Tel: (303) 581 6428
Fax: (303) 581 6429
E-mail: info.clinicalchemistry@thermo.com

Contact Point

Australia

Quality Assurance Manager:
Tel: +61 3 9790 4100
Mon – Fri 9:00am to 5:00pm

U.S.A

Chemtel
24 Hour Emergency Assistance
1-800-255-3924

2. HAZARD IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO EU CRITERIA

Hazard Classification: HAZARDOUS SUBSTANCE, DANGEROUS GOODS.

Hazard Category

DMAB Diluent: Corrosive

DMAB Powder: Harmful, Irritant

Elution Reagent: None allocated

Resin filled syringes: None allocated

RISK PHRASES

DMAB Diluent

R34 Causes burns.

R37 Irritating to respiratory system.

DMAB Powder

R22 Harmful if swallowed.

R36/38 Irritating to eyes and skin.

Elution Reagent & Resin filled syringes

None allocated

SAFETY PHRASES

DMAB Diluent

S26 In case of contact with eyes, rinse immediately with plenty of water and contact a doctor or Poisons Information Centre.

DMAB Powder

S28 After contact with skin, wash immediately with plenty of plenty of soap and water.

Elution Reagent & Resin filled syringes

S23 Do not breathe mist.

S24/25 Avoid contact with skin and eyes.

Poison Schedule

DMAB Diluent: S6

This material is a Scheduled (S6) Poison and must be stored, handled and used according to the appropriate regulations.

DMAB Powder, Elution Reagent & Resin filled syringes: None allocated

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3. COMPOSITION / INFORMATION ON INGREDIENTS

SUBSTANCE NAME	Proportion	CAS Number
DMAB Diluent		
HYDROCHLORIC ACID	30 to 60 %	7647-01-0
WATER AND OTHER NON-HAZARDOUS SUBSTANCES	30 to 60 %	Mixture
DMAB Powder		
p-DIMETHYLAMINOBENZALDEHYDE	> 99 %	100-10-7

All other ingredients determined not to be hazardous according to the EU criteria.

Elution Reagent

ACETIC ACID	< 0.5 %	64-19-7
WATER AND OTHER NON HAZARDOUS INGREDIENTS	Balance	Mixture

All other ingredients determined not to be hazardous according to the EU criteria.

Resin filled syringes

All ingredients determined not to be hazardous according to the EU criteria.

4. FIRST AID MEASURES

Swallowed:

DMAB Diluent, Elution Reagent & Resin filled syringes

If swallowed, **DO NOT** induce vomiting. Give plenty of water to drink. Seek urgent medical assistance.

DMAB Powder

If swallowed, and if more than 15 minutes from a hospital, **induce vomiting**, preferably using Ipecac Syrup APF.

Eye:

DMAB Diluent

If material is splashed into eyes, flush with plenty of water for at least 15 minutes, ensuring eye lids are held open.

URGENTLY transport to hospital or doctor.

DMAB Powder

If dust enters the eyes, flush with plenty of water for at least 15 minutes, ensuring eye lids are held open. If irritation persists, immediately transport to hospital or doctor.

Elution Reagent & Resin filled syringes

If liquid or mists enter the eyes, flush with plenty of water for at least 15 minutes, ensuring eye lids are held open. If irritation develops or persists, immediately transport to hospital or doctor.

Skin:

DMAB Diluent, Elution Reagent & Resin filled syringes

If material is splashed onto the skin, remove any contaminated clothing and wash skin thoroughly with water and soap. Immediately transport to hospital or doctor.

DMAB Powder

If dust is falls onto the skin, remove any contaminated clothing and wash skin thoroughly with soap and water. If irritation persists transport to hospital or doctor.

Inhaled:

Remove victim to fresh air. Do not use mouth-to-mouth method if victim inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult.

First Aid Facilities:

Eye wash fountain, safety shower and normal wash room facilities.

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4. FIRST AID MEASURES (continued)

Advice to Doctor:**DMAB Diluent**

Due to the potential for esophageal or gastrointestinal tract burns following ingestion, emesis should not be induced and gastric lavage done only with caution. Immediate dilution with water or milk might be beneficial. Do not give sodium bicarbonate in an attempt to neutralize the acid.

DMAB Powder & Elution Reagent & Resin filled syringes

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Fire/Explosion Hazard

CAUTION: Use of water spray when fighting fire may be inefficient.

EXTINGUISHING MEDIA: Use dry chemical, carbon dioxide, foam or water fog.

SPECIAL FIRE FIGHTING PROCEDURES: Self-contained breathing apparatus (SCBA) required for fire-fighting personnel. If possible to do so safely, shut off fuel to fire. Use water spray to spray to cool fire-exposed surfaces and to protect personnel.

UNUSUAL FIRE AND EXPLOSION HAZARDS: If tanks, drums or containers of this material are heated, they may rupture and project corrosive liquids over a wide area.

Flammability

Not flammable or combustible. If involved in a fire may generate noxious and corrosive fumes.

6. ACCIDENTAL RELEASE MEASURES

DMAB Diluent**EMERGENCY ACTION:**

Keep unnecessary people away; Isolate hazard area and deny entry. Stay upwind; Keep out of low areas. Wear appropriate eye, skin and respiratory protection as outlined in this MSDS. *Caution, this material is corrosive.*

SPILL OR LEAK PROCEDURE:

Remove all non-ferrous metals from area (aluminium, zinc and magnesium), if product has spilt on these metals immediately, flush them with plenty of water and shut off ignition sources, no smoking or flames in hazard area. Stop leak if you can do it without risk. Water spray may reduce vapour; but it may not prevent ignition in closed spaces.

SMALL SPILLS:

Take up with sand, dirt or vermiculite. **DO NOT** use sawdust. Use non-sparking tools. Place into labeled plastic drum(s) for later disposal.

LARGE SPILLS:

Notify Emergency Services (Police or Fire Brigade). Tell them exact location, nature, hazards, quantities, type of vehicle and any other information that would be helpful. Contain spill. Remove all ignition sources and safely stop flow of spill. Bund area. Trained personnel should wear Personal Protective equipment as highlighted in this MSDS. Blanket the spill with foam or use water fog to disperse vapour clouds. Consult an expert regarding disposal of this product.

Warning: Products that contain mineral acids must be kept away from non-ferrous metals, as extremely flammable hydrogen gas will be generated and if the appropriate flammability limits are reached and a source of ignition is present, a violent explosion will occur.

DMAB Powder

Avoid generating dusts. Wear suitable protective equipment. Ventilate area. If possible wet area down to prevent high dust levels. If available, use dustless methods, such as a HEPA vacuum and filter. Otherwise, use a non-sparking shovel and place into a suitably labeled container for later disposal. Do not dry sweep.

Elution Reagent & Resin filled syringes

Walk cautiously. Ventilate area. Wear protective equipment to prevent skin and eye contact, as outlined under personal protection in this MSDS. Bund area using sand or soil - to prevent run off into drains and waterways. Place absorbent (soil, sand, vermiculite or other inert material) onto spill. Collect and seal in properly labeled containers for disposal. Remainder of material on floor can be neutralized by cautiously adding sodium bicarbonate or soda ash. Collect this material after foaming/effervescence ceases and place into above labeled container

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7. HANDLING AND STORAGE

Avoid prolonged breathing of vapors and skin or eye contact. Store in a cool place and out of direct sunlight. Store away from sources of heat or ignition. Store away from oxidizing agents and strong alkalis. Store at 18-25°C and the reagent will be stable until the expiry date stated on the bottle and kit box labels. Keep containers tightly closed, when not using the product. For further information please refer to the Engineering Controls of this MSDS.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Standards

DMAB Diluent

No exposure standards are available for this product, however, the following exposure standards have been assigned by the National Occupational Health & Safety Commission (NOHSC) to the following component of the product:

HYDROCHLORIC ACID

(Worksafe Australia)

[TWA] 5 ppm 7.5 mg/m³

[STEL] Peak limitation

Notices: H

DMAB Powder

No exposure standards are available for this product, however, the nature of the product is a dust therefore it is recommended that an exposure standard of 10 mg/m³ for an eight hour exposure based upon Nuisance dust.

Elution Reagent

No exposure standards are available for this product, however, the following exposure standards have been assigned by the National Occupational Health & Safety Commission (NOHSC) to the following component of the product:

ACETIC ACID

(Worksafe Australia)

[TWA] 10 ppm 25 mg/m³

[STEL] 15 ppm 37 mg/m³

Notices: H

Resin filled syringes

No exposure standards are available for this product.

Engineering Controls

DMAB Diluent

Corrosive liquid. Single significant exposure may cause severe injury or even death. Maintain adequate ventilation at all times. Prevent accumulation of vapours in hollows or sumps. Eliminate any sources of ignition. Keep away from non-ferrous metals (zinc, magnesium and aluminium and their alloys).

Exposure to this material may be controlled in a number of ways. The measures appropriate for a particular worksite depend on how the material is used and on the potential for exposure. Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (dilution and local exhaust), and control of process conditions. If engineering controls and work practices are not effective in preventing or controlling exposure, then suitable personal protective equipment, which is known to perform satisfactorily, should be used.

DMAB Powder

Good industrial hygiene practice requires that employee exposure be maintained below the recommended TLV/TWA. This is preferably achieved through the provision of adequate ventilation where necessary.

Where dust cannot be controlled in this way, personal respiratory protection should be employed.

Elution Reagent & Resin filled syringes

Maintain adequate ventilation at all times. No other measures are required for this product.

Personal Protection Equipment

DMAB Diluent & Elution Reagent

CLOTHING: PVC or Nitrile.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION (cont)

GLOVES: PVC or Nitrile.

EYES: Chemical goggles or faceshield to protect eyes.

RESPIRATORY PROTECTION: Avoid breathing of vapours. Select and use respirators in accordance with AS/NZS 1715/1716. When the concentration of airborne contaminants reach the exposure standards then the use of a half-face respirator with acid vapour cartridge is recommended. For high concentration use a atmosphere-supplied, positive pressure demand self-contained or airline breathing apparatus supplied air respirator complying with the requirements of AS/NZS 1715 is recommended. Filter capacity and respirator type depends on exposure levels and type of contaminant.

If entering spaces where the airborne concentration of a contaminant is unknown then the use of a Self-contained breathing apparatus (SCBA) with positive pressure air supply complying with AS/NZS 1715 / 1716, or any other acceptable International Standard is recommended. The use of fully-encapsulating, gas-tight suit is also recommended.

DMAB Powder

Personal Protection Equipment

GLOVES: Not normally required, however, for people with sensitive skins the use of neoprene or PVC is recommended.

EYES: Chemical goggles or faceshield to protect eyes.

RESPIRATORY PROTECTION: Avoid breathing of dusts. The use of a respirator is not normally required, however, if high dust levels are present, then the use of a suitable dust mask or half-face respirator with a P1 filter is recommended. All respirators must comply with AS/NZS 1715 and AS/NZS 1716.

Resin filled syringes

Personal Protection Equipment

GLOVES: Not normally required, however, if handling large quantities the use of natural rubber is recommended.

EYES: Goggles or faceshield for spills.

RESPIRATORY PROTECTION: Avoid breathing of mists. The use of a respirator is not normally required, however, if entering spaces where the airborne concentration of a contaminant is unknown then the use of a Self-contained breathing apparatus (SCBA) with positive pressure air supply complying with AS/NZS 1715 / 1716, or any other acceptable International Standard is recommended. Select and use respirators in accordance with AS/NZS 1715/1716.

9. PHYSICAL AND CHEMICAL PROPERTIES

	DMAB Diluent	DMAB Powder
Appearance:	Clear liquid with pungent irritating odour.	White granular Powder
Boiling Point:	~ 110°C	176 – 177 °C @17 mmHg
Vapour Pressure:	> 25 mmHg @ 20°C	not available.
Specific Gravity:	1.03 - 1.05	not available.
Flash Point:	Not applicable.	
Flammability Limits:	Not applicable	not available.
Solubility in Water:	Completely soluble.	Insoluble
Other Properties		
pH:	2.2 ± 0.10	2.2 ± 0.10
Elution Reagent		
Appearance:	Clear liquid pungent irritating odour.	Whitish, odourless liquid resin
Boiling Point:	not available.	not available.
Vapour Pressure:	not available.	23.0 hPa
Specific Gravity:	not available.	not available.
Flash Point:	Not applicable.	Not applicable.
Flammability Limits:	not available.	not available.
Solubility in Water:	soluble	insoluble
Other Properties		
pH:	2.3 ± 0.10	not available.

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10. STABILITY AND REACTIVITY

STABILITY:

Stable under normal conditions of use.

HAZARDOUS DECOMPOSITION PRODUCTS:**DMAB Diluent**

Emits choking and corrosive fumes when heated to decomposition.

DMAB Powder & Elution Reagent

Decomposes on heating emitting oxides of carbon.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

Strong alkalis/bases, aluminium, zinc, magnesium and their alloys and oxidizing agents.

CONDITIONS TO AVOID:

Incompatibles and exposure to heat or sources of ignition.

11. TOXICOLOGICAL INFORMATION

DMAB Diluent

There is no toxicological information available for this product, however, for the ingredient:

Hydrochloric acid:

According to OECD Guideline for the Testing of Chemicals (OECD 405) for eye corrosion and OECD Guideline for the Testing of Chemicals (OECD 404) for skin corrosion, both test procedures have been utilized to determine that hydrochloric acid is a confirmed corrosive substance.

This product contains significantly greater than 25 % of hydrochloric acid which is considered to be **CORROSIVE** according to the criteria of the National Commission (Worksafe Australia).

DMAB Powder

The following toxicological information is available for this product.

Oral LDLo(Rat): 500 mg/kg

Intraperitoneal(Rat): 1,800 mg/kg/9D intermittent

Effects of ataxia and death.

Elution Reagent

There is no toxicological information available for this product, however, for the acetic acid component:

Oral LD50(rat): 3,310 mg/kg

Dermal LD50(rabbit): 1,060 µL/kg

Inhalation LC50(rat): 16,000 ppm/4H

Irritation:

According to the Draize tests (Standard and open) for (skin and eye) irritation/corrosivity, acetic acid is considered to be a corrosive substance, this is further supported by the National Commission's (Worksafe Australia's) classification that acetic acid is corrosive at concentrations greater than 25 %, however, this product contains less than 1 % of acetic acid and is thus considered to be NON HAZARDOUS according to the criteria of Worksafe Australia.

Resin filled syringes

There is no toxicological information available for this product, it is anticipated that the following information is applicable:

Oral LD50(rat): > 5,000 mg/kg

Dermal LD50(rabbit): > 5,000 mg/kg

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11. TOXICOLOGICAL INFORMATION (continued)

ACUTE HEALTH EFFECTS

Swallowed:

DMAB Diluent

Will cause burns to the mouth, mucous membranes, throat, oesophagus and stomach. If sufficient quantities are ingested (swallowed) death may occur.

DMAB Powder

Harmful if swallowed. Swallowing of large quantities may cause the inability to co-ordinate movements (ataxia) and potential central nervous system effects. May cause irritation to mouth, throat and stomach with effects including mucous build up, irritation to the tongue and lips and pains in the stomach, which may lead to nausea, vomiting and diarrhoea.

Elution Reagent & Resin filled syringes

May cause irritation to mouth, throat and stomach with effects including mucous build up, irritation to the tongue and lips and pains in the stomach, which may lead to nausea, vomiting and diarrhoea.

Eye:

DMAB Diluent

Will cause burns to the eyes with effects including: Pain, tearing, conjunctivitis and if duration of exposure is long enough, blindness will occur.

DMAB Powder, Elution Reagent & Resin filled syringes

Will cause irritation to the eyes, with effects including: tearing, pain, stinging and blurred vision. Depending upon duration of exposure, reversible effects to the cornea may occur.

Skin:

Will cause burns to the skin, with effects including; Redness, blistering, localised pain and dermatitis.

Inhaled:

Will cause severe irritation to the nose, throat and respiratory system with effects including: Dizziness, headache, coughing, loss of co-ordination, chest pains, respiratory paralysis and or failure.

Chronic:

Prolonged or repeated skin contact will lead to necrosis (death) of the skin.

12. ECOLOGICAL INFORMATION

DMAB Diluent

No information is available for this product, however, for sodium hydroxide component:

Water pollution:

Persistence: Can persist for extended periods of time.

Effect on water treatment process: Can raise pH and interfere with coagulation.

DMAB Powder & Resin filled syringes

Aquatic toxicity: Data not available.

Persistence: Data not available.

Biological oxygen demand (BOD): Data not available.

Food chain concentration potential: Data not available.

Elution Reagent

Aquatic toxicity: A large number of biological screening studies have determined that acetic acid biodegrades readily under aerobic and anaerobic conditions.

Persistence: Data not available.

Biological oxygen demand (BOD): Biological oxygen demand after 10 days at 20°C is: 82 % biological oxidation in fresh water and 88 % biological oxidation in sea water.

Food chain concentration potential: Data not available.

Avoid contaminating waterways, drains or sewers.

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13. DISPOSAL CONSIDERATIONS

Refer to appropriate authority in your State. Normally suitable for disposal by approved waste disposal agent.

14. TRANSPORT INFORMATION

DMAB Diluent

UN Number: 1789

Proper Shipping Name: HYDROCHLORIC ACID

Dangerous Goods Class: 8

Packing Group: II

Hazchem Code: 2R

Classified as a CLASS 8 (CORROSIVE) Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail, 6th Edition.

Dangerous goods of Class 8 (Corrosive) are incompatible in a placard load with any of the following:

- Class 1
- Class 4.3
- Class 5
- Class 6, if the Class 6 dangerous goods are cyanides and the Class 8 dangerous goods are acids
- Class 7

and are incompatible with food and food packaging in any quantity.

Emergency information(Transport):

Dangerous Goods - Initial Emergency Response Guide (SAA/SNZ HB76:1997)

For TOXIC AND/OR CORROSIVE Guide No: 37

This product is classified as a Dangerous Good according to ICAO/IATA regulations:

PROPER SHIPPING NAME: HYDROCHLORIC ACID

UN No: UN1789

CLASS: 8

PACK GROUP: II

DMAB Powder, Elution Reagent & Resin filled syringes

UN Number: None allocated

Proper Shipping Name: NONE ALLOCATED

Dangerous Goods Class: None allocated

Subsidiary risk: None allocated

Packing Group: None allocated

Hazchem Code: None allocated

Road and Rail Transport:

Not classified as a Dangerous Good according to the United Nations Recommendations for the Transport of Dangerous Goods and Globally Harmonized System for the classification and labelling of Chemicals.

Marine Transport:

Not classified as a Dangerous Good according to the International Maritime Organization Rules (Maritime Dangerous Goods Code - IMDG Code) for transport by sea.

Air Transport:

Not classified as a Dangerous Good according to the International Civil Aviation Organization (ICAO) and International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.

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15. REGULATORY INFORMATION

Inventory Status:

Australia (AICS)	Y
United States (TSCA)	Y
Canada (DSL)	Y
Europe (EINECS/ELINCS)	Y
Japan (MITI)	Y
South Korea (KECL)	Y

Y = all ingredients are on the inventory.

16. OTHER INFORMATION

Issue date: July, 2004

Reasons for Update:

1. Alignment with the 2nd Edition of National Code of Practice for the Preparation of Material Safety Data Sheets [NOHSC:2001(2003).
2. Changes and /or addition made to all sections.

Key Legend Information:

NOHSC - National Occupational Health & Safety Commission [Aust]
TWA - Time Weighted Average [Int]
STEL - Short Term Exposure Limit [Int]
AICS - Australian Inventory of Chemical Substances
EPA - Environmental Protection Agency [Int]
NIOSH - National Institute for Occupational Safety and Health [US]
AS/NZS 1715 - Selection, use and maintenance of respiratory protective devices. [Aust]
AS/NZS 1716 - Respiratory protective devices. [Aust]
IATA - International Aviation Transport Authority [Int]
ICAO - International Civil Aviation Organization
IM IMDG - International Maritime Dangerous Goods

United Nations Recommendations for the Transport of Dangerous Goods and Globally Harmonized System for the classification and labelling of Chemicals. [Int]

EU - European Union

[Aust/NZ] = Australian/New Zealand

[Int] = International

[US] = United States of America

Principal References:

Information supplied by manufacturer, reference sources including the public domain.

Disclaimer

This MSDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

Our responsibility for products sold is subject to our standard terms and conditions which are available on request.

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END OF MSDS