

Material Safety Data Sheet

Section 1: Chemical Product and Company Information

Identity: RM-02, RM-04, RM-06, RM-08, RM-10, RM-12, RM-14, RM-16, RM-18, RM-20, RM-60 or any combination, for example, RM-0204060810, Potassium Dichromate Reference Cell.

Cell Identity: 'PDC'.

Manufactured by: Starna Scientific Ltd

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Section 2: Composition

Reference Cell contains: Less than 3 ml of an aqueous solution of 0.001M perchloric acid (HClO₄) with Potassium Dichromate (K₂Cr₂O₇) from 20 mg/l to 600 mg/l

CAS No: 7778-50-9

Section 3: Hazards Identification

Under USA regulations, MSDSs are not required for these materials, and the information provided below is additional safety data as a service to our customers. Our reference cells are a fully-enclosed, manufactured item intended as an end-use product for customers. Therefore, our 'sealed-cell' references are not classified as a "hazardous chemical" and are not treated as such under the U.S. OSHA Hazardous Communications Rule. 'Sealed-cell' references are considered "articles" within the meaning of 29 CFR Section 1910.1200(c), since they are formed to a specific shape or design during manufacture, have an end-use dependent upon their shape or design, and do not release or otherwise result in exposure to hazardous chemicals under normal conditions of use.

Route of Entry - Inhalation: no (sealed cells).

Route of Entry - Skin: no (sealed cells).

Route of Entry - Ingestion: no (sealed cells).

Health Hazard acute and chronic: Due to the small size and volume of the sealed cells and the complete sealing of the materials in quartz cells the only contact that can be made to the chemicals is through the breakage of the cells. The quartz shards would be more hazardous and must be handled as with any glass breakage.

Signs and symptoms of exposure: possible skin irritation.

Medical Conditions aggravated by exposure: none.

Section 4: First Aid Measures

Under normal circumstances no measures are required for contact with the quartz cell. In the event of breakage of any of cells, wash with water and safely dispose of the quartz pieces. If contact is made with the cell liquid by breakage of the cell, the following apply.

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

Ingestion: If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing. Get medical attention immediately.

Eye contact : Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Section 5: Fire Fighting Measures

In the event of the heat from a fire causing rupture of the quartz cell, the small volumes of the cell contents involved would not contribute to the incident or add any significant risk, and the measures shown below are for reference if the material is involved in a larger conflagration.

Suitable extinguishing agents: Carbon Dioxide, extinguishing powder, or water jet.

Protective equipment: Wear full protective clothing, and a self-contained breathing apparatus

Section 6: Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in section 8.

Spill: Collect using liquid absorber. Dispose of contaminated product by usual procedure.

Section 7: Handling and Storage

When not being used for measurement, store closed in provided foam filled wooden box.

Protect from freezing.

Section 8: Exposure Controls, Personal Protection

Under normal use, no protective measures are required. In the event of a breakage, the following will apply to any liquid released.

Respiratory Protection: none required.

Ventilation: none required.

Protective Gloves: Chemical resistant gloves.

Eye Protection: Chemical resistant goggles.

Other protective equipment: Have immediate availability of eyewash.

Section 9: Physical and Chemical Properties

Appearance: Transparent liquid heat fusion sealed in a quartz cell, 3ml.

Boiling Point: 100 °C.

Specific Gravity: 1.0

Vapour Pressure (mm Hg): n/a.

Melting Point: 0 °C.

Vapour Density: n/a.

Evaporation Rate: n/a.

Solubility in Water: soluble.

Section 9: Fire and Explosion Hazard:

Flash point: n/a.

Flammable limits: non-flammable.

Section 11: Stability and Reactivity

Stability: stable under normal operating conditions.

Conditions to avoid: Avoid contact with incompatible materials if broken.

Incompatible Materials:

Perchloric acid: acids, combustible materials, metals, oxidizing agents, metal oxides, halocarbons, metal salts, and bases.

Potassium dichromate: organic combustible substances, anhydrides, hydrazine and derivatives, hydroxylamine, sulfides/water, reducing agents, concentrated sulfuric acid, glycerol, boron, iron, magnesium, metals in powder form.

Hazardous Decomposition Products: Perchloric acid can produce acid halides and oxides of chlorine.

Hazardous Polymerization:

Section 12: Toxicology Information

0.001 M Perchloric acid Prolonged Direct skin contact may cause skin irritation.

Carcinogenicity: potassium dichromate is a suspected carcinogen, and ingestion or skin contact should be avoided.

Section 13: Ecological Information

Under normal conditions of use, these 'sealed-cell' references do not constitute any risk or hazard to the environment. If broken, do not allow liquid contents to reach ground water, water bodies or sewage system.

Section 14: Disposal Considerations

Incineration: Never incinerate 'sealed-cell' references.

Landfill: Never dispose of 'sealed-cell' references as landfill.

Recycling: 'Sealed-cell' references must be recycled. Contact local Starna dealer for information. Starna Scientific has a recycling protocol for all types of returned 'sealed-cell' references.

Section 15: Transport Information

Land transport ARD/RID and GGVS/GGVE (cross-border/domestic)

ADR/RID-GGVS/E Class:None

Maritime transport IMDG/GGVSea IMDG/GGVSea Class:None

Air transport ICAO-TI and IATA-DGR

ICAO/IATA Class: None

Section 16: Regulatory information

Designed according to EC guidelines: Observe the normal safety regulations when handling chemicals. This 'sealed-cell' reference is not subject to classification according to EC lists and other sources of literature known to us. The product is not subject to identification regulations under EC Directives and the Ordinance on Hazardous Materials (German GefStoffV).

Section 17: Other information

Other: none.

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