1. PRODUCT AND COMPANY IDENTIFICATION

180156
Product Code
SODIUM HEXACHLOROPLATINATE(IV)
Trade Name
SODIUM HEXACHLOROPLATINATE(IV)
Substance
SODIUM HEXACHLOROPLATINATE(IV)
Manufacturer/Supplier
Johnson Matthey PLC
Precious Metals Division, Chemicals
Address
Orchard Road
ROYSTON, Hertfordshire
SG8 5HE
Phone Number
+(44) 1763 253000
Fax Number
+(44) 1763 253155

3. HAZARD IDENTIFICATION

Sodium hexachloroplatinate is a severe irritant to the eyes and lungs, is a mild skin irritant and is toxic if swallowed, (LD50 (oral-rat) 25-50 mg/kg). It is highly allergenic and will cause Type 1 sensitisation in susceptible individuals. Sensitised persons, on re-exposure to platinum salts, will show the clinical features of a Type 1 allergy - asthma and/or rhinitis and/or conjunctivitis and/or urticaria. A contact dermatitis can also occur.

For Platinum Tetrachloride, an LD50 (oral-rat) of 276 mg/kg is given. Users should also note that sodium hexachloroplatinate is reported as producing reproductive effects in laboratory animals. ??

4. FIRST AID MEASURES

First Aid Inhalation of the dust will result in coughing and sneezing and severe irritation of the respiratory tract, and is the main cause of sensitisation. The symptoms of the allergic reaction to platinum salts may include any of the following: -itchy red eyes, watering of the eyes, sneezing, runny nose, chest tightness, wheezing, breathlessness, cough, eczematous or urticarial (nettle rash type) skin lesions. Exposure to platinum salts in exceedingly small amounts, even below the level of physico-chemical detection, will produce symptoms in sensitised persons. Continued exposure will give symptoms of increasing
severity and can eventually lead to chronic asthma. There is a risk of
anaphylactic shock occurring in sensitised persons re-encountering platinum
salts. Therefore, if sensitisation has developed, further exposure to platinum
compounds must not be permitted. “Platinum asthma” is a prescribed
occupational disease in the UK. Ingestion will lead to severe abdominal pain,
with possible chemical burns to the mouth and throat. Contact with the skin
will be irritating. Strong solutions are corrosive, with the possibility of burns in
severe cases. Contact with the eyes will be painful at all levels of exposure. ??

remove from exposure and allow to rest in fresh air. Rinse nose and mouth
First Aid - Inhalation
with clean water. If breathing is difficult, give oxygen if available. Get
immediate medical attention. ?
rinse mouth with water and give water or milk to drink. Do not induce
First Aid - Ingestion
vomiting. Get immediate medical attention.

4. FIRST AID MEASURES (continued)
irrigate with water or isotonic saline solution for 15 minutes. Get medical
First Aid - Eyes
attention.
Remove contaminated clothing and wash skin with copious amounts of soap
First Aid - Skin
and water. If irritation persists or tissue is damaged, get medical attention. ??

Acute allergic reactions are managed symptomatically as indicated by the
First Aid
clinical condition. There is no known antidote.

5. FIRE FIGHTING MEASURES
Although the material is not flammable, toxic fumes will be produced if
involved in a fire. The residue, ash or char left after a fire may have catalytic
properties and may promote the re-ignition of flammable materials and
vapours. Wear self-contained breathing apparatus and personal protective
equipment. Use any extinguisher suitable for the surrounding fire. ??

6. ACCIDENTAL RELEASE MEASURES
Evacuate non-protected personnel. Wear protective clothing, impervious
gloves, eye protection and filter-type respiratory protection when dealing with
spillages. Solid spills should be carefully collected into a sealable, plastic
lined drum. Solutions should be absorbed in sand or other inert absorbent
and carefully transferred to a plastic lined drum. The site of the spillage may
be treated with an aqueous solution of a reducing agent, to convert any
remaining platinum compounds to the metal. Store accumulated rags, wipes,
mops, sand, vermiculite etc. in suitably labelled containers for return to the
refinery for precious metal recovery. Afterwards, wash the site of the spillage
with copious amounts of water. If the spill has resulted in the dispersion of
dust through the air, the area must be decontaminated by thorough washing
with water. ?? ??

7. HANDLING AND STORAGE
Handling (JM) Good industrial hygiene practices should be observed. Avoid direct contact.
Do not eat, drink, smoke or apply cosmetics whilst handling. Exposure to air-
borne particulates must be kept within permissible limits. Use only under
conditions of good local ventilation. ?? ?? ?? ?? Storage (JM) Keep in a secure store, in a sealed, plastic container, away from incompatible
materials such as reducing agents. ?? ??
8. EXPOSURE CONTROLS/PERSOAL PROTECTION
UK MEL for halogeno-platinum compounds - 0.002 mg/m³
USA ACGIH TLV-TWA for soluble platinum salts - 0.002 mg/m³
German MAK for platinum compounds, measured as total dust - 0.002 mg/m³
Danish ELV for soluble platinum compounds - 0.002 mg/m³
All values calculated as Pt. High risk of sensitization.

Local exhaust extraction should be used. Vapour and fumes from all operations should be vented to external atmosphere via a collection or scrubbing system. Personal filter type respiratory protection, impervious gloves and industrial safety glasses should be worn. Work clothes should be changed as often as necessary and at least after every working shift. Wash hands after using this material.

Users of large amounts of the solid or its solutions should consider the application of engineering control measures, such as total enclosure and remote operation where possible. Workplace air and the exhaust from the ventilation system should be monitored for airborne platinum to ensure that exposure limit are not exceeded. This monitoring should include personal breathing zone sampling. Pre-exposure and periodic medical examinations of persons exposed to platinum salts are recommended. Further details are given in the HSE's Guidance Note MS22, "The Medical Monitoring of Workers Exposed to Platinum Salts" (ISBN 0 11 883575 0). For non UK residents,

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8. EXPOSURE CONTROLS/PERSOAL PROTECTION (continued)
Information is available from the JM Group Occupational Physician. ?? ? ? ? ?

9. PHYSICAL AND CHEMICAL PROPERTIES
orange-yellow powder.
Appearance
Odour No odour.
no data.

pH
decomposes on heating.
Boiling Range/Point
loses water of crystallis
Melting Point
not applicable.
Flash Point
not flammable.
Flammability
not applicable.
Auto-flammability
not explosive.

Oxidising Properties
Oxidising Properties not oxidising.
no data.

Vapour Pressure
no data.

Density
Water - very soluble.
Solubility in Water
Fat - no data. Soluble in ethanol and acetone. ?

Partition Coefficient

10. STABILITY AND REACTIVITY
On standing in air, the solid will absorb moisture and may coalesce into a hard lump. The acidic, aqueous solution will hydrolyse when subjected to heat and light. Old solutions will contain chloro-hydroxy platinum species.
The solution may be stabilised by the addition of hydrochloric acid. The solid decomposes on heating, giving off toxic fumes.

11. TOXICOLOGICAL INFORMATION
There is no specific toxicological data available. Persons with a history of allergic diseases, such as asthma or hay-fever, should not work with platinum salts. A history of cardiac or pulmonary disease may also preclude work with platinum salts - medical opinion should be sought. Any workers experiencing untoward effects or symptoms should be removed from exposure and medically examined for platinum sensitivity. Sensitisation is indicated by positive skin prick test to low concentration solutions of platinum salts.

12. ECOLOGICAL INFORMATION
The reproduction of daphnids is impaired (16%) by 0.014 ppm Pt in 3 weeks. Hydrogen hexachloroplatinate is reported to be lethal to certain freshwater species. The complex may persist for some time in the environment.

13. DISPOSAL
Return accumulated waste material to the refinery for metal recovery, or dispose of in accordance with local and national regulations.

14. TRANSPORT INFORMATION
U.N. No. 3288, Class 6.1, Packing Group II.
ADR 2601 68(b)
Proper Shipping Name - "Toxic solid, inorganic, n.o.s."

15. REGULATORY INFORMATION
Toxic Labelling Information
R25 Toxic if swallowed.
R phrases
R36/37 Irritating to eyes and respiratory system.
R42/43 May cause sensitisation by inhalation and skin contact.
S22 Do not breathe dust.
S phrases
S24 Avoid contact with skin.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

2409835 EINECS Number
T - Toxic EC Annex I Classification

16. OTHER INFORMATION
MSDS first issued 30 July 1999
26 March 2001 MSDS data revised
This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is given in good faith, being based on the latest information available to Johnson Matthey PLC and is to the best of Johnson Matthey PLC's knowledge and belief, accurate and reliable at the time of preparation. However, no representation, warranty or guarantee is made as to the accuracy, liability or completeness and Johnson Matthey PLC assumes no responsibility therefore, and disclaims any liability for any loss, damage or injury howsoever arising (including in respect of any claim brought by any third party) incurred using this information. The product is supplied on the condition that the user accepts responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. Freedom from patent or any other proprietary rights of any third party must not be assumed.
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