

SAFETY DATA SHEET - United States

trimethyl(methylcyclopentadienyl)platinum(IV)

Section 1. Identification

Code: BC1001

GHS product identifier: trimethyl(methylcyclopentadienyl)platinum(IV)

Chemical name: Platinum, trimethyl[(1,2,3,4,5-eta.)-1-methyl-2,4-cyclopentadien-1-yl]-

Other means of identification: (Methylcyclopentadienyl)trimethylplatinum

Product type: Solid.

Relevant identified uses of the substance or mixture and uses advised against: Not applicable.

Supplier's details: Johnson Matthey, 2001 Nolte Drive, West Deptford, NJ 08066 USA

Manufacturer: Boulder Scientific Company, 598 Third St, Mead, CO 80542 USA

Emergency telephone number (with hours of operation): For Hazardous Materials [or Dangerous Goods] Incident, Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night (collect calls accepted).
Within USA and Canada: 1-800-424-9300. Outside USA and Canada: +1 703-527-3887

Section 2. Hazards identification

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture: ACUTE TOXICITY (oral) - Category 2
ACUTE TOXICITY (dermal) - Category 1
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
SKIN SENSITIZATION - Category 1
GERM CELL MUTAGENICITY - Category 2

GHS label elements

Hazard pictograms



Signal word: **Danger**

Hazard statements: Fatal if swallowed or in contact with skin.
Causes serious eye irritation.
Causes skin irritation.
May cause an allergic skin reaction.
Suspected of causing genetic defects.

Precautionary statements

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Do not get in eyes, on skin, or on clothing. Avoid breathing dust. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace.

trimethyl(methylcyclopentadienyl)platinum(IV)

Section 2. Hazards identification

Response IF exposed or concerned: Get medical attention. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. IF ON SKIN: Take off immediately all contaminated clothing and wash it before reuse. Wash with plenty of soap and water. Immediately call a POISON CENTER or physician. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage Store locked up.

Disposal Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified None known.

Section 3. Composition/information on ingredients

Substance/mixture Substance

Chemical name Platinum, trimethyl[(1,2,3,4,5-eta.)-1-methyl-2,4-cyclopentadien-1-yl]-

Other means of identification (Methylcyclopentadienyl)trimethylplatinum

CAS number/other identifiers

CAS number 94442-22-5

Product code BC1001

Ingredient name	%	CAS number
Platinum, trimethyl[(1,2,3,4,5-eta.)-1-methyl-2,4-cyclopentadien-1-yl]-	100	94442-22-5

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact Get medical attention immediately. Call a poison center or physician. Gently wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

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Version : 1

2/12

Section 4. First aid measures

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** Causes serious eye irritation.
- Inhalation** No known significant effects or critical hazards.
- Skin contact** Fatal in contact with skin. Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** Fatal if swallowed.

Over-exposure signs/symptoms

- Eye contact** Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** No specific data.
- Skin contact** Adverse symptoms may include the following:
irritation
redness
- Ingestion** No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** No specific treatment.
- Protection of first-aiders** No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

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

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical No specific fire or explosion hazard.

Hazardous thermal decomposition products Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
metal oxide/oxides

Special protective actions for fire-fighters Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

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.

Remark Not available.

Remark Not available.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities Do not store above the following temperature: 5°C (41°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Platinum, trimethyl[(1,2,3,4,5-eta.)-1-methyl-2,4-cyclopentadien-1-yl]- None.

Appropriate engineering controls If user operations generate dust, fumes, gas, 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.

Section 8. Exposure controls/personal protection

Environmental exposure controls Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Physical state	Solid. [Crystalline solid.]	Odor	Not available.
Color	Off-white.	Odor threshold	Not available.
pH	Not available.	Relative density	Not available.
Melting point	30 to 31°C (86 to 87.8°F)	Burning time	Not available.
Boiling point	Not available.	Burning rate	Not available.
Flash point	Not available.	Lower and upper explosive (flammable) limits	Not available.
Evaporation rate	Not available.	Auto-ignition temperature	Not available.
Vapor pressure	Not available.	Decomposition temperature	Not available.
Vapor density	Not available.	SADT	Not available.
Partition coefficient: n-octanol/water	Not available.	Viscosity	Not available.
Solubility in water	Not available.		
Solubility	Insoluble in the following materials: cold water and hot water.		
Flammability (solid, gas)	Not available.		

Section 10. Stability and reactivity

Reactivity	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	No specific data.
Incompatible materials	No specific data.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on the likely routes of exposure Not available.

Information on toxicological effects

Conclusion/Summary: Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	No specific data.
Skin contact	Adverse symptoms may include the following: irritation redness
Ingestion	No specific data.

Conclusion/Summary: Potential acute health effects

Inhalation	No known significant effects or critical hazards.
Ingestion	Fatal if swallowed.
Skin contact	Fatal in contact with skin. Causes skin irritation. May cause an allergic skin reaction.
Skin Sensitization	Fatal in contact with skin. May cause an allergic skin reaction.
Eye contact	Causes serious eye irritation. Fatal in contact with skin. Causes skin irritation.
Respiratory Sensitization	Not available.

Conclusion/Summary: Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Long term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Conclusion/Summary: Potential chronic health effects

General	Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	Suspected of causing genetic defects.
Teratogenicity	No known significant effects or critical hazards.

Section 11. Toxicological information

Developmental effects No known significant effects or critical hazards.

Fertility effects No known significant effects or critical hazards.

Numerical measures of toxicity: Acute toxicity estimates

Not available.

Numerical measures of toxicity: Toxicity data

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Platinum, trimethyl[(1,2,3,4,5-eta.)-1-methyl-2,4-cyclopentadien-1-yl]-	LD50 Oral	Rat	5 to 25 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Platinum, trimethyl[(1,2,3,4,5-eta.)-1-methyl-2,4-cyclopentadien-1-yl]-	Skin - Moderate irritant	Rabbit	-	-	-

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Platinum, trimethyl[(1,2,3,4,5-eta.)-1-methyl-2,4-cyclopentadien-1-yl]-	skin	Mouse	Sensitizing

Mutagenicity

Product/ingredient name	Test	Experiment	Result
Platinum, trimethyl[(1,2,3,4,5-eta.)-1-methyl-2,4-cyclopentadien-1-yl]-	471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Positive

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Section 11. Toxicological information

Chronic toxicity

Not available.

Conclusion/Summary Not available.

Other information

Other adverse symptoms Not available.

Interactive effects Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Platinum, trimethyl[(1,2,3,4,5-eta.)-1-methyl-2,4-cyclopentadien-1-yl]-	Acute EC50 0.031 mg/l	Daphnia	48 hours

Conclusion/Summary Very toxic to aquatic life.

Persistence and degradability

Conclusion/Summary Not available.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{oc}) Not available.

Mobility Not available.

Other adverse effects No known significant effects or critical hazards.

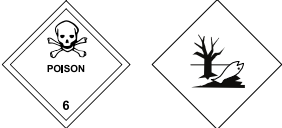
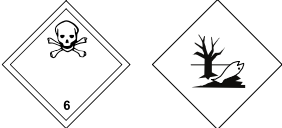

Section 13. Disposal considerations

Disposal methods The generation of waste should be avoided or minimized wherever possible. 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 local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Waste stream Not available.

RCRA classification Not available.

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	UN3467	UN3467	UN3467
UN proper shipping name	Organometallic compound, solid, toxic, n.o.s. (Platinum, trimethyl[(1,2,3,4,5-.eta.)-1-methyl-2,4-cyclopentadien-1-yl]-)	ORGANOMETALLIC COMPOUND, TOXIC, SOLID, N.O.S. (Platinum, trimethyl[(1,2,3,4,5-.eta.)-1-methyl-2,4-cyclopentadien-1-yl]-)	Organometallic compound, solid, toxic, n.o.s. (Platinum, trimethyl[(1,2,3,4,5-.eta.)-1-methyl-2,4-cyclopentadien-1-yl]-)
Transport hazard class(es) and Packing group	6.1 I 	6.1 I 	6.1 I 
Environmental hazards	Yes.	Yes.	No.
Additional information	<p>This product is not regulated as a marine pollutant when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes, provided the packagings meet the general provisions of §§ 173.24 and 173.24a.</p> <p>Limited quantity Yes.</p> <p>Packaging instruction Passenger aircraft Quantity limitation: 5 kg</p> <p>Cargo aircraft Quantity limitation: 50 kg</p> <p>Special provisions IB7, IP1, T6, TP33</p>	<p>The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> <p>Emergency schedules (EmS) F-A, S-A</p> <p>Special provisions 274</p>	<p>The environmentally hazardous substance mark may appear if required by other transportation regulations.</p> <p>Passenger and Cargo Aircraft Quantity limitation: 5 kg Packaging instructions: 666</p> <p>Cargo Aircraft Only Quantity limitation: 50 kg Packaging instructions: 673</p> <p>Limited Quantities - Passenger Aircraft Quantity limitation: Forbidden Packaging instructions: Forbidden</p> <p>Special provisions A3, A5</p>

Special precautions for user **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code Not available.

Proper shipping name Not available.
Ship type Not available.
Pollution category Not available.

Section 15. Regulatory information

U.S. Federal regulations TSCA 8(a) CDR Exempt/Partial exemption: Not determined

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) Not listed

Clean Air Act Section 602 Class I Substances Not listed

Clean Air Act Section 602 Class II Substances Not listed

DEA List I Chemicals (Precursor Chemicals) Not listed

DEA List II Chemicals (Essential Chemicals) Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ Not applicable.

SARA 311/312

Classification Immediate (acute) health hazard
Delayed (chronic) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Platinum, trimethyl[(1,2,3,4,5-eta.)-1-methyl-2,4-cyclopentadien-1-yl]-	100	No.	No.	No.	Yes.	Yes.

State regulations

Massachusetts This material is not listed.

New York This material is not listed.

New Jersey This material is not listed.

Pennsylvania This material is not listed.

Not available.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Section 15. Regulatory information

Not listed.

International lists

National inventory

Australia	Not determined.
Canada	This material is not listed in DSL but is listed in NDSL.
China	Not determined.
Europe	Not determined.
Japan	Japan inventory (ENCS): Not determined. Japan inventory (ISHL): Not determined.
Malaysia	Not determined.
New Zealand	Not determined.
Philippines	Not determined.
Republic of Korea	Not determined.
Taiwan	This material is listed or exempted.
Turkey	Not determined.

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
ACUTE TOXICITY (oral) - Category 2	On basis of test data
ACUTE TOXICITY (dermal) - Category 1	On basis of test data
SKIN IRRITATION - Category 2	On basis of test data
EYE IRRITATION - Category 2A	On basis of test data
SKIN SENSITIZATION - Category 1	On basis of test data
GERM CELL MUTAGENICITY - Category 2	On basis of test data

History

Version 1 Date of issue/Date of revision 27/02/2017 Date of printing 27/02/2017
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Key to abbreviations

ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 UN = United Nations

References

Not available.

📌 Indicates information that has changed from previously issued version.

Section 16. Other information

US Label
(29 CFR 1910.1200(f)(1))

trimethyl(methylcyclopentadienyl) platinum(IV)

CAS: 94442-22-5 Code: BC1001



Danger

Fatal if swallowed or in contact with skin. Causes serious eye irritation. Causes skin irritation. May cause an allergic skin reaction. Suspected of causing genetic defects.

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Do not get in eyes, on skin, or on clothing. Avoid breathing dust. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. IF EXPOSED or concerned: Get medical attention. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. IF ON SKIN: Take off immediately all contaminated clothing and wash it before reuse. Wash with plenty of soap and water. Immediately call a POISON CENTER or physician. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention. Store locked up. Dispose of contents and container in accordance with all local, regional, national and international regulations.

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Notice to reader

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