

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product Name : Heavy Atom M1™  
Product Number : HR2-448  
Product type : Liquid  
REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : For research use only. Not for drug, household, or other use.

**1.3 Details of the supplier of the Safety Data Sheet**

Company : Hampton Research  
34 Journey  
Aliso Viejo, CA 92656-3317  
United States  
Telephone : 949 425 1321  
Telephone technical support is available 8:00 a.m. to 4:30 p.m. USA Pacific Standard Time.  
Fax : 949 425 1611  
Fax Technical Support is available 24 hours a day.  
e-mail : tech@hrmail.com  
e-mail Technical Support is available 24 hours a day.

**1.4 Emergency telephone number**

Emergency phone : 949 425 1321  
For **CHEMTREC** Assistance : 800 424 9300  
For **CHEMTREC** Assistance : 703 527 3887 (International)

**SECTION 2: Hazards Identification****2.1 Classification of the substance or mixture**

**Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]**

see SECTION 16

**Classification according to EU Directives 67/548/EEC or 1999/45/EC**

see SECTION 16

**Additional information:**

Relevant R-phrase(s), S-phrase(s), GHS pictogram(s), Hazard statement(s), and Precautionary statement(s) please see SECTION 16

## (CONTINUED) - SECTION 2: Hazards Identification

### 2.2 Label elements

Hazard pictogram	: Not applicable
Signal word	: Not applicable
Hazard statement(s)	: Not applicable
Precautionary statement(s)	: Not applicable
Supplemental Hazard Statements	: Not applicable

2.3 Other hazards : none

## SECTION 3: Composition/information on ingredients

Refer to Section 16

## SECTION 4: First Aid Measures

### 4.1 Description of first aid measures

#### General Advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated

### 4.3 Indication of any immediate medical attention and special treatment needed

#### Notes to physician

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

#### Specific treatments

No specific treatment.

## SECTION 5: Fire Fighting Measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

#### Unsuitable extinguishing media

None known

### 5.2 Special hazards arising from the substance or mixture

No data available

### 5.3 Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

### 5.4 Further Information

No data available

## SECTION 6: Accidental Release Measures

### 6.1 Personal Precautions

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

### 6.2 Environmental precautions

Do not let product enter drains.

### 6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

### 6.4 Reference to other sections

For disposal see SECTION 8 and 13.

## SECTION 7: Handling and Storage

### 7.1 Personal Precautions

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed.

See Section 8 for additional information on hygiene measures. For precautions see section 16.

### 7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

Containers which are opened must be carefully resealed and kept upright to prevent leakage.

### 7.3 Specific end uses

A part from the uses mentioned in section 1.2 no other specific uses are stipulated.

## SECTION 8: Exposure Controls/Personal Protection

### 8.1 Control parameters

#### Components with workplace control parameters

Consult a physician. Show this safety data sheet to the doctor in attendance.

### 8.2 Exposure controls

#### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### Personal protective equipment

##### Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

##### Body Protection

Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

##### Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

##### Environmental Exposure Controls

See SECTION 6

## SECTION 9: Physical and Chemical Properties

No data available

## SECTION 10: Stability and Reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

No data available

### 10.3 Possibility of hazardous reactions

No data available

## (CONTINUED) - SECTION 10: Stability and Reactivity

### 10.4 Conditions to avoid

No data available

### 10.5 Incompatible materials

No data available

### 10.6 Hazardous decomposition products

Other decomposition products - no data available

## SECTION 11: Toxicological Information

Refer to Section 16

## SECTION 12: Ecological Information

Refer to Section 16

## SECTION 13: Disposal Considerations

### 13.1 Waste treatment methods

#### Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

#### Contaminated packaging

Dispose of as unused product.

## SECTION 14: Transportation Information

### 14.1 UN number

ADR/RID: 3316

IMDG: 3316

IATA: 3316

### 14.2 UN proper shipping name

ADR/RID: CHEMICAL KIT

IMDG: CHEMICAL KIT

IATA: Chemical kit

### 14.3 Transport hazard class(es)

ADR/RID: -

IMDG: -

IATA: -

### 14.4 Packaging group

ADR/RID: -

IMDG: -

IATA: -

### 14.5 Environmental hazards

ADR/RID: No

IMDG Marine pollutant: No

IATA: No

**(CONTINUED) - SECTION 14: Transportation Information****14.6 Special precautions for user**

No data available

**SECTION 15: Regulatory Information**

This safety data sheet complies with the requirements of Regulation (EC) No 1907/2006.

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

No data available

**15.2 Chemical Safety Assessment**

No data available

**SECTION 16: Other Information**

Kit Components							
Substance Name	[CAS]	R-Phrase	S-Phrase	GHS Pictogram	Hazard Statement	Precautionary Statement	WKG
Acetoxytrimethyllead(IV)	5711-19-3	61-26/27/28-33-50/53-62	53-45-60-61	GHS06, GHS08, GHS09	H300-H310-H330-H360-H373-H410	P201-P260-P264-P273-P280-P284	3
Ammonium hexabromoosmate(IV)	24598-62-7						
Ammonium hexachloroiridate(III) hydrate	15752-05-3						
Cadmium chloride hydrate	654054-66-7	45-46-60-61-25-26-48/23/25-50/53	53-45-60-61	GHS06, GHS08, GHS09	H301-H330-H340-H350-H360FD-H372-H410	P201-P260-P273-P284-P301 + P310-P310	3
Cadmium iodide	7790-80-9	23/25-33-50/53-68	22-45-60-61	GHS06, GHS08, GHS09	H301-H331-H351-H373-H410	P261-P273-P281-P301 + P310-P311-P501	3
Iridium(III) chloride hydrate	14996-61-3	36/37/38	26-36	GHS07	H315-H319-H335	P261-P305 + P351 + P338	3
Lead(II) acetate trihydrate	6080-56-4	61-33-48/22-50/53-62	53-45-60-61	GHS08, GHS09	H360DF-H373-H410	P201-P273-P308 + P313-P501	3
Lead(II) chloride	7758-95-4	61-20/22-33-50/53-62	53-45-60-61	GHS07, GHS08, GHS09	H302-H332-H360Df-H373-H410	P201-P273-P308 + P313-P501	3
Lead(II) nitrate	10099-74-8	61-8-20/22-33-41-50/53-62	53-26-39-45-60-61	GHS03, GHS05, GHS07, GHS08, GHS09	H272-H302 + H332-H318-H360Df-H373-H410	P201-P220-P273-P280-P305 + P351 + P338-P308 + P313	3
Osmium(III) chloride hydrate	14996-60-2	23/24/25-36/37/38	26-36/37/39-45	GHS06	H301-H311-H315-H319-H331-H335	P261-P280-P301 + P310-P305 + P351 + P338-P311	3
Potassium hexachloroiridate(IV)	16920-56-2	20/21/22-36/37/38	26-36	GHS07	H302 + H312 + H332-H315-H319-H335	P261-P280-P305 + P351 + P338	3
Potassium hexachloroosmate(IV)	16871-60-6	23/24/25-34	22-26-36/37/39-45	GHS05, GHS06	H301-H311-H314-H331	P261-P280-P305 + P351 + P338-P310	3

**(CONTINUED) - SECTION 16: Other Information**

<b>Kit Components</b>							
<b>Substance Name</b>	<b>[CAS]</b>	<b>R-Phrase</b>	<b>S-Phrase</b>	<b>GHS Pictogram</b>	<b>Hazard Statement</b>	<b>Precautionary Statement</b>	<b>WKG</b>
Potassium hexanitroiridium(III)	38930-18-6	36/37/38	26-36	GHS07	H315-H319-H335	P261-P305 + P351 + P338	3
Potassium osmate(VI) dihydrate	10022-66-9	23/24/25	22-26-36-45	GHS06	H301-H311-H331	P261-P280-P301 + P310-P311	3
Silver nitrate	7761-88-8	8-34-50/53	26-36/37/39-45-60-61	GHS03, GHS05, GHS09	H272-H314-H410	P220-P273-P280-P305 + P351 + P338-P310-P501	3
Sodium hexachloroiridate(III) hydrate	123334-23-6	36/37/38	26-36	GHS07	H315-H319-H335	P261-P305 + P351 + P338	3
Thallium(I) chloride	7791-12-0	26/28-33-51/53	13-28-45-61	GHS06, GHS08, GHS09	H300-H330-H373-H411	P260-P264-P273-P284-P301 + P310-P310	3
Thallium(III) acetate hydrate	62811-75-0						
Thallium(III) chloride hydrate	13453-33-3	26/28-33-51/53	13-28-45-61	GHS06, GHS08, GHS09	H300 + H330-H373-H411	P260-P264-P273-P284-P301 + P310-P310	3
<b>For additional information, please refer to the individual Material Safety Data Sheets(s).</b>							

**Relevant R-phrase(s), S-phrase(s), GHS Pictogram(s), Hazard statement(s), and Precautionary statement(s)****Risk Phrase(s)**

- R 8 : Contact with combustible material may cause fire
- R 20/22 : Harmful by inhalation and if swallowed
- R 20/21/22 : Harmful by inhalation, in contact with skin and if swallowed
- R 23/24/25 : Toxic by inhalation, in contact with skin and if swallowed
- R 23/25 : Toxic by inhalation and if swallowed
- R 25 : Toxic if swallowed
- R 26 : Very toxic by inhalation
- R 26/27/28 : Very toxic by inhalation, in contact with skin and if swallowed
- R 26/28 : Very toxic by inhalation and if swallowed
- R 33 : Danger of cumulative effects
- R 34 : Causes burns
- R 36/37/38 : Irritating to eyes, respiratory system and skin
- R 41 : Risk of serious damage to eyes
- R 45 : May cause cancer
- R 46 : May cause heritable genetic damage
- R 48/22 : Harmful: danger of serious damage to health by prolonged exposure if swallowed
- R 48/23/25 : Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed
- R 50/53 : Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment
- R 51/53 : Toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment
- R 60 : May impair fertility
- R 61 : May cause harm to the unborn child
- R 62 : Possible risk of impaired fertility
- R 68 : Possible risk of irreversible effects

## (CONTINUED) - SECTION 16: Other Information







### Relevant R-phrase(s), S-phrase(s), GHS Pictogram(s), Hazard statement(s), and Precautionary statement(s)

#### Safety Phrase(s)

- S 13 : Keep away from food, drink and animal feeding stuff  
S 22 : Do not breathe dust  
S 26 : In case of contact with eyes, rinse immediately with plenty of water and seek medical advice  
S 28 : After contact with skin, wash immediately with plenty of soap  
S 36 : Wear suitable protective clothing and seek medical advice  
S 36/37/39 : Wear suitable protective clothing, gloves and eye/face protection  
S 39 : Wear eye/face protection  
S 45 : In case of accident or if you feel unwell, seek medical advice immediately (show label where possible)  
S 53 : Avoid exposure - obtain special instruction before use  
S 60 : This material and/or its container must be disposed of as hazardous waste  
S 61 : Avoid release to the environment. Refer to special instructions safety data sheet

### Relevant R-phrase(s), S-phrase(s), GHS Pictogram(s), Hazard statement(s), and Precautionary statement(s)

#### GHS Pictogram

- |       |                     |   |       |                  |   |
|-------|---------------------|---|-------|------------------|---|
| GHS03 | : Flame over circle |    | GHS07 | : Acute toxicity |    |
| GHS05 | : Corrosion         |   | GHS08 | : Health Hazard  |   |
| GHS06 | : Acute toxicity    |  | GHS09 | : Environment    |  |

#### Hazard statement(s)

- H272 : May intensify fire; oxidizer.  
H300 : Fatal if swallowed.  
H300 + H330 : Fatal if swallowed or if inhaled.  
H301 : Toxic if swallowed.  
H302 : Harmful if swallowed.  
H302 + H312 : Harmful in contact with skin or if inhaled.  
H302 + H312 + H332 : Harmful if swallowed, in contact with skin or if inhaled.  
H302 + H332 : Harmful if swallowed or if inhaled.  
H310 : Fatal in contact with skin.  
H311 : Toxic in contact with skin.  
H314 : Causes severe skin burns and eye damage.  
H315 : Causes skin irritation.  
H318 : Causes serious eye damage.  
H319 : Causes serious eye irritation.  
H330 : Fatal if inhaled.  
H331 : Toxic if inhaled.  
H332 : Harmful if inhaled.  
H335 : May cause respiratory irritation.  
H340 : May cause genetic defects.  
H350 : May cause cancer.



## (CONTINUED) - SECTION 16: Other Information

### Relevant R-phras(e)s, S-phras(e)s, GHS Pictogram(s), Hazard statement(s), and Precautionary statement(s) (Continued) - Hazard statement(s)

- H351 : Suspected of causing cancer.
- H360 : May damage fertility or the unborn child.
- H360FD : May damage fertility. May damage the unborn child.
- H360Df : May damage the unborn child. Suspected of damaging fertility.
- H372 : Causes damage to organs through prolonged or repeated exposure.
- H373 : Causes damage to organs through prolonged or repeated exposure.
- H410 : Very toxic to aquatic life with long lasting effects.
- H411 : Toxic to aquatic life with long lasting effects.

### Precautionary statement(s)

- P201 : Obtain special instructions before use.
- P220 : Keep/Store away from clothing/.../combustible materials.
- P260 : Do not breathe dust/fume/gas/mist/vapours/spray.
- P261 : Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 : Wash hands thoroughly after handling.
- P273 : Avoid release to the environment.
- P280 : Wear protective gloves/protective clothing/eye protection/face protection.
- P281 : Use personal protective equipment as required.
- P284 : Wear respiratory protection.
- P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P310 : Immediately call a POISON CENTER or doctor/physician.
- P311 : Call a POISON CENTER or doctor/physician.
- P305 + P351 + P338 : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308 + P313 : IF exposed or concerned: Get medical advice/attention.
- P501 : Dispose of contents/container to a licensed disposal company.

### DISCLAIMER

- For R&D use only. Not for drug, household, or other use.

### WARRANTY

- The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of this product. Hampton Research Corp., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.
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