

World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

MSDS No: M00146

Material Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Folding Stove w/ Fuel Tablets
Catalog Number: 220600

Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Emergency Telephone Numbers
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M00146
Chemical Name: 1,3,5,7-Tetraazatricyclo[3.3.1.1^{3,7}]decane
CAS No.: 100-970
Chemical Formula: C₆H₁₂N₄
Chemical Family: Aromatic Amines
Hazard: May cause irritation. Flammable solid. May cause allergic reaction.
Date of MSDS Preparation:
Day: 3
Month: 05
Year: 2002

2. COMPOSITION / INFORMATION ON INGREDIENTS

Hexamethylenetetramine

CAS No.: 100-97-0
TSCA CAS Number: 100-970
Percent Range: 100.0
Percent Range Units: weight / weight
LD50: Oral mouse LDLo = 512 mg/kg
LC50: None reported
TLV: Not established
PEL: Not established
Hazard: May cause irritation. Flammable solid. May cause allergic reaction.

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: White powder
Odor: None
HARMFUL IF SWALLOWED MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION
MAY CAUSE ALLERGIC SKIN REACTION
DECOMPOSITION FORMS FORMALDEHYDE FLAMMABLE SOLID

HMIS:

Health: 2
Flammability: 1
Reactivity: 1
Protective Equipment: X - See protective equipment, Section 8.

NFPA:

Health: 2
Flammability: 1
Reactivity: 1

Symbol: Not applicable

Potential Health Effects:

Eye Contact: May cause irritation

Skin Contact: May cause irritation May cause allergic reaction

Skin Absorption: None reported

Target Organs: None reported

Ingestion: May cause: abdominal pain gastrointestinal irritation kidney damage

Target Organs: Kidneys

Inhalation: May cause: respiratory tract irritation

Target Organs: None reported

Medical Conditions Aggravated: Pre-existing: Eye conditions Skin conditions Respiratory conditions Allergies or sensitivity to hexamethylenetetramine.

Chronic Effects: None reported

Cancer / Reproductive Toxicity Information:

O.S.H.A. Listed: No

IARC Listed: No

NTP Listed: No

Additional Cancer / Reproductive Toxicity Information: Contains: an experimental mutagen.
Toxicologically Synergistic Products: None reported

4. FIRST AID

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.

Skin Contact (First Aid): Wash skin with soap and plenty of water. Remove contaminated clothing. Call physician if irritation develops.

Ingestion (First Aid): Give large quantities of water. Call physician immediately.

Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.

5. FIRE FIGHTING MEASURES

Flammable Properties: Exposure to heat may promote violent decomposition. Can burn in fire, releasing toxic vapors.

Flash Point: 236°C (482°F)

Method: Open cup

Flammability Limits:

Lower Explosion Limits: Not determined

Upper Explosion Limits: Not determined

Autoignition Temperature: 410°C (770°F)

Hazardous Combustion Products: May emit toxic and corrosive fumes.

Fire / Explosion Hazards: Do not expose to sparks or other ignition sources. Do not expose to flames. May react violently with: strong acids strong oxidizers

Static Discharge: None reported.

Mechanical Impact: None reported

Extinguishing Media: Water spray to cool containers Dry chemical. Water. Carbon dioxide Alcohol foam.

Fire Fighting Instruction: Containers can build up pressure if exposed to heat. As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear. Evacuate area and fight fire from a safe distance.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:

Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance.

Containment Technique: Remove all combustible material from spill area. Remove all ignition and spark-creating sources from the spill area. May be ignited by: heat, sparks, or flames. damp conditions or water. Cover spilled solid material with sand or other inert material. Stop spilled material from being released to the environment.

Clean-up Technique: Eliminate all sources of ignition. Use only non-sparking tools. Avoid contact with spilled material. Sweep up material. Incinerate material at an E.P.A. approved hazardous waste facility. Decontaminate the area of the spill with a soap solution.

Evacuation Procedure: Evacuate local area (15 foot radius or as directed by your facility's emergency response plan) when: a pound or more of loose powder is spilled. If conditions warrant, increase the size of the evacuation.

Special Instructions (for accidental release): Not applicable

304 EHS RQ (40 CFR 355): Not applicable

D.O.T. Emergency Response Guide Number: 133

7. HANDLING / STORAGE

Handling: Avoid contact with eyes skin clothing Do not breathe dust. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.

Storage: Keep away from: acids oxidizers

Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Use general ventilation to minimize exposure to mist, vapor or dust. Maintain general industrial hygiene practices when using this product.

Personal Protective Equipment:

Eye Protection: safety glasses with top and side shields

Skin Protection: disposable latex gloves lab coat

Inhalation Protection: adequate ventilation

Precautionary Measures: Avoid contact with: eyes skin clothing Do not breathe: dust Wash thoroughly after handling.

Keep away from: acids/acid fumes oxidizers

TLV: Not established

PEL: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: White powder

Physical State: Solid

Molecular Weight: 140.19

Odor: None

pH: 0.2 M solution = 8.4

Vapor Pressure: Not applicable

Vapor Density (air = 1): Not applicable

Boiling Point: Sublimes @ 280°C (536°F)

Melting Point: Sublimes @ 280°C (536°F)

Specific Gravity (water = 1): 1.33

Evaporation Rate (water = 1): Not applicable

Volatile Organic Compounds Content: Not available

Partition Coefficient (n-octanol / water): Not available

Solubility:

Water: 1 g/ 1.5 ml H₂O

Acid: Decomposes

Other: 1 g/ 12.5 ml alcohol; 1 g/ 320 ml ether; 1 g/ 10 ml chloroform

Metal Corrosivity:

Steel: Not determined

Aluminum: Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.

Conditions to Avoid: Heating to decomposition.

Reactivity / Incompatibility: May explode in contact with: acids acetic acid nitric acid ammonia salts

Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fumes of: nitrogen oxides formaldehyde

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:

LD50: Oral mouse LDLo = 512 mg/kg

LC50: None reported

Dermal Toxicity Data: None reported

Skin and Eye Irritation Data: None reported

Mutation Data: Cytogenic analysis in human HeLa cells @ 1 mmol/l; Oncogenic Transformation- hamster kidney - 10 mg/L

Reproductive Effects Data: None reported

Ingredient Toxicological Data: --

Not applicable

12. ECOLOGICAL INFORMATION

Product Ecological Information: Water Pollution Factors: BOD₅: 0.015; 0.026 std. dil. sew.

Ingredient Ecological Information: --

Not applicable

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: D001

Special Instructions (Disposal): Dispose of material in an E.P.A. approved hazardous waste facility.

Empty Containers: Rinse three times with an appropriate solvent. Dispose of empty container as normal trash.

NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information.

14. TRANSPORT INFORMATION

D.O.T.:

D.O.T. Proper Shipping Name: Hexamethylenetetramine

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DOT Hazard Class: 4.1

DOT Subsidiary Risk: NA

DOT ID Number: UN1328

DOT Packing Group: III

I.C.A.O.:

I.C.A.O. Proper Shipping Name: Hexamethylenetetramine

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ICAO Hazard Class: 4.1

ICAO Subsidiary Risk: NA

ICAO ID Number: UN1328

ICAO Packing Group: III

I.M.O.:

I.M.O. Proper Shipping Name: Hexamethylenetetramine

--

I.M.O. Hazard Class: 4.1

I.M.O. Subsidiary Risk: NA

I.M.O. ID Number: UN1328

I.M.O. Packing Group: III

15. REGULATORY INFORMATION

U.S. Federal Regulations:

O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)

E.P.A.:

S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard Delayed (Chronic) Health Hazard Fire Hazard

S.A.R.A. Title III Section 313 (40 CFR 372): This product does NOT contain any chemical subject to the reporting requirements of Section 313 of Title III of SARA.

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302 (EHS) TPQ (40 CFR 355): Not applicable

304 CERCLA RQ (40 CFR 302.4): Not applicable

304 EHS RQ (40 CFR 355): Not applicable

Clean Water Act (40 CFR 116.4): Not applicable

RCRA: Contains no RCRA regulated substances.

C.P.S.C.: Not applicable

State Regulations:

California Prop. 65: No Prop. 65 listed chemicals are present in this product.

Identification of Prop. 65 Ingredient(s): None

Trade Secret Registry: Not applicable

National Inventories:

U.S. Inventory Status: TSCA Listed: Yes

TSCA CAS Number: 100-970

16. OTHER INFORMATION

Intended Use: Laboratory Reagent

References: Vendor Information. Technical Judgment. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. TLV's Threshold Limit Values and Biological Exposure Indices for 1992/1993. American Conference of Governmental Industrial Hygienists, 1992. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor).

Legend:

NA - Not Applicable

w/w - weight/weight

ND - Not Determined

w/v - weight/volume

NV - Not Available

v/v - volume/volume

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

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Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

MSDS No: M00146

Material Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Heatab Dry Fuel Tablet
Catalog Number: 220700

Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M00146
Chemical Name: 1,3,5,7-Tetraazatricyclo[3.3.1.1^{3,7}]decane
CAS No.: 100-970
Chemical Formula: C₆H₁₂N₄
Chemical Family: Aromatic Amines
Hazard: May cause irritation. Flammable solid. May cause allergic reaction.
Date of MSDS Preparation:
Day: 3
Month: 05
Year: 2002

2. COMPOSITION / INFORMATION ON INGREDIENTS

Hexamethylenetetramine
CAS No.: 100-97-0
TSCA CAS Number: 100-970
Percent Range: 100.0
Percent Range Units: weight / weight
LD50: Oral mouse LDLo = 512 mg/kg
LC50: None reported
TLV: Not established
PEL: Not established
Hazard: May cause irritation. Flammable solid. May cause allergic reaction.

3. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance: White powder
Odor: None
HARMFUL IF SWALLOWED MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION
MAY CAUSE ALLERGIC SKIN REACTION
DECOMPOSITION FORMS FORMALDEHYDE FLAMMABLE SOLID

HMIS:
Health: 2
Flammability: 1
Reactivity: 1
Protective Equipment: X - See protective equipment, Section 8.

NFPA:
Health: 2
Flammability: 1
Reactivity: 1

Symbol: Not applicable

Potential Health Effects:

Eye Contact: May cause irritation

Skin Contact: May cause irritation May cause allergic reaction

Skin Absorption: None reported

Target Organs: None reported

Ingestion: May cause: abdominal pain gastrointestinal irritation kidney damage

Target Organs: Kidneys

Inhalation: May cause: respiratory tract irritation

Target Organs: None reported

Medical Conditions Aggravated: Pre-existing: Eye conditions Skin conditions Respiratory conditions Allergies or sensitivity to hexamethylenetetramine.

Chronic Effects: None reported

Cancer / Reproductive Toxicity Information:

O.S.H.A. Listed: No

IARC Listed: No

NTP Listed: No

Additional Cancer / Reproductive Toxicity Information: Contains: an experimental mutagen.
Toxicologically Synergistic Products: None reported

4. FIRST AID

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.

Skin Contact (First Aid): Wash skin with soap and plenty of water. Remove contaminated clothing. Call physician if irritation develops.

Ingestion (First Aid): Give large quantities of water. Call physician immediately.

Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.

5. FIRE FIGHTING MEASURES

Flammable Properties: Exposure to heat may promote violent decomposition. Can burn in fire, releasing toxic vapors.

Flash Point: 236°C (482°F)

Method: Open cup

Flammability Limits:

Lower Explosion Limits: Not determined

Upper Explosion Limits: Not determined

Autoignition Temperature: 410°C (770°F)

Hazardous Combustion Products: May emit toxic and corrosive fumes.

Fire / Explosion Hazards: Do not expose to sparks or other ignition sources. Do not expose to flames. May react violently with: strong acids strong oxidizers

Static Discharge: None reported.

Mechanical Impact: None reported

Extinguishing Media: Water spray to cool containers Dry chemical. Water. Carbon dioxide Alcohol foam.

Fire Fighting Instruction: Containers can build up pressure if exposed to heat. As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear. Evacuate area and fight fire from a safe distance.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:

Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance.

Containment Technique: Remove all combustible material from spill area. Remove all ignition and spark-creating sources from the spill area. May be ignited by: heat, sparks, or flames. damp conditions or water. Cover spilled solid material with sand or other inert material. Stop spilled material from being released to the environment.

Clean-up Technique: Eliminate all sources of ignition. Use only non-sparking tools. Avoid contact with spilled material. Sweep up material. Incinerate material at an E.P.A. approved hazardous waste facility. Decontaminate the area of the spill with a soap solution.

Evacuation Procedure: Evacuate local area (15 foot radius or as directed by your facility's emergency response plan) when: a pound or more of loose powder is spilled. If conditions warrant, increase the size of the evacuation.

Special Instructions (for accidental release): Not applicable

304 EHS RQ (40 CFR 355): Not applicable

D.O.T. Emergency Response Guide Number: 133

7. HANDLING / STORAGE

Handling: Avoid contact with eyes skin clothing Do not breathe dust. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.

Storage: Keep away from: acids oxidizers

Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Use general ventilation to minimize exposure to mist, vapor or dust. Maintain general industrial hygiene practices when using this product.

Personal Protective Equipment:

Eye Protection: safety glasses with top and side shields

Skin Protection: disposable latex gloves lab coat

Inhalation Protection: adequate ventilation

Precautionary Measures: Avoid contact with: eyes skin clothing Do not breathe: dust Wash thoroughly after handling.

Keep away from: acids/acid fumes oxidizers

TLV: Not established

PEL: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: White powder

Physical State: Solid

Molecular Weight: 140.19

Odor: None

pH: 0.2 M solution = 8.4

Vapor Pressure: Not applicable

Vapor Density (air = 1): Not applicable

Boiling Point: Sublimes @ 280°C (536°F)

Melting Point: Sublimes @ 280°C (536°F)

Specific Gravity (water = 1): 1.33

Evaporation Rate (water = 1): Not applicable

Volatile Organic Compounds Content: Not available

Partition Coefficient (n-octanol / water): Not available

Solubility:

Water: 1 g/ 1.5 ml H₂O

Acid: Decomposes

Other: 1 g/ 12.5 ml alcohol; 1 g/ 320 ml ether; 1 g/ 10 ml chloroform

Metal Corrosivity:

Steel: Not determined

Aluminum: Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.

Conditions to Avoid: Heating to decomposition.

Reactivity / Incompatibility: May explode in contact with: acids acetic acid nitric acid ammonia salts

Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fumes of: nitrogen oxides formaldehyde

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:

LD50: Oral mouse LDLo = 512 mg/kg

LC50: None reported

Dermal Toxicity Data: None reported

Skin and Eye Irritation Data: None reported

Mutation Data: Cytogenic analysis in human HeLa cells @ 1 mmol/l; Oncogenic Transformation- hamster kidney - 10 mg/L

Reproductive Effects Data: None reported

Ingredient Toxicological Data: --

Not applicable

12. ECOLOGICAL INFORMATION

Product Ecological Information: Water Pollution Factors: BOD₅: 0.015; 0.026 std. dil. sew.

Ingredient Ecological Information: --

Not applicable

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: D001

Special Instructions (Disposal): Dispose of material in an E.P.A. approved hazardous waste facility.

Empty Containers: Rinse three times with an appropriate solvent. Dispose of empty container as normal trash.

NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information.

14. TRANSPORT INFORMATION

D.O.T.:

D.O.T. Proper Shipping Name: Hexamethylenetetramine

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DOT Hazard Class: 4.1

DOT Subsidiary Risk: NA

DOT ID Number: UN1328

DOT Packing Group: III

I.C.A.O.:

I.C.A.O. Proper Shipping Name: Hexamethylenetetramine

--

ICAO Hazard Class: 4.1

ICAO Subsidiary Risk: NA

ICAO ID Number: UN1328

ICAO Packing Group: III

I.M.O.:

I.M.O. Proper Shipping Name: Hexamethylenetetramine

--

I.M.O. Hazard Class: 4.1

I.M.O. Subsidiary Risk: NA

I.M.O. ID Number: UN1328

I.M.O. Packing Group: III

15. REGULATORY INFORMATION

U.S. Federal Regulations:

O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)

E.P.A.:

S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard Delayed (Chronic) Health Hazard Fire Hazard

S.A.R.A. Title III Section 313 (40 CFR 372): This product does NOT contain any chemical subject to the reporting requirements of Section 313 of Title III of SARA.

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302 (EHS) TPQ (40 CFR 355): Not applicable
304 CERCLA RQ (40 CFR 302.4): Not applicable
304 EHS RQ (40 CFR 355): Not applicable
Clean Water Act (40 CFR 116.4): Not applicable
RCRA: Contains no RCRA regulated substances.
C.P.S.C.: Not applicable
State Regulations:
California Prop. 65: No Prop. 65 listed chemicals are present in this product.
Identification of Prop. 65 Ingredient(s): None
Trade Secret Registry: Not applicable
National Inventories:
U.S. Inventory Status: TSCA Listed: Yes
TSCA CAS Number: 100-970

16. OTHER INFORMATION

Intended Use: Laboratory Reagent
References: Vendor Information. Technical Judgment. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor).

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

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