Hexamine Stabilizer - Granular

Safety Data Sheet

Issue date: 4/10/2022

SECTION 1: Identification

1.1. Identification

Product form	:	Substance
Trade name	:	Hexamine - Granular
Product code	:	356764

1.2. Recommended use and restrictions on use

Use of the substance/mixture	:	Industrial use
Recommended use	:	Industrial applications, Resin additive
Restrictions on use	:	The product should not be used for purposes other than those shown above without first referring to the supplier and obtaining written handling instructions, Perform risk assessment prior to use.

1.3. Supplier

Flic Film Inc.
10B Morrison Road, Longview,
Alberta,
Canada T0L 1HO
T +1-403-982-4272

1.4. Emergency telephone number

Emergency number	:	+1-403-982-4272

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Flammable solids Category 2	H228	Flammable solid
Skin sensitization, Category 1	H317	May cause an allergic skin reaction
Combustible Dust		May form combustible dust concentrations in air

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :

Signal word (GHS US) : Warning

Hazard statements (GHS US) : May form combustible dust concentrations in air
H228 - Flammable solid
H317 - May cause an allergic skin reaction

Precautionary statements (GHS US) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 - Ground/Bond container and receiving equipment.
P241 - Use explosion-proof electrical/ventilating/lighting equipment.
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
P272 - Contaminated work clothing must not be allowed out of the workplace.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

2.3. Other hazards which do not result in classification

Other hazards which do not result in classification : May form explosive dust-air mixture if dispersed. Combustible dust when finely divided and suspended in air. Fine dust clouds may form explosive mixtures with air. Product can explode if dust cloud is formed and ignited.

Minimize airborne dust. Eliminate all fire/ignition sources including static discharges near product/package. Prevent dust accumulation. Refer to Handling Section 7 of the MSDS for more information.

Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name : Hexamine - Granular /BG6869/50#

Name	Product identifier	%	GHS US classification
Hexamethylenetetramine ; Hexamine	CAS-No.: 100-97-0	100	Flam. Sol. 2, H228 Skin Sens. 1, H317 Comb. Dust

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Loosen tight clothing such as a collar, tie, belt or waistband. Maintain an open airway. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If breathing is difficult, trained personnel should give oxygen. Apply artificial respiration if victim is not breathing. If unconscious, place in the recovery position and seek medical advice.

First-aid measures after skin contact : Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention. Continue to rinse for at least 10 minutes. Wash contaminated clothing before reuse. Thoroughly clean shoes before re-using.

First-aid measures after eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Remove contact lenses, if present and easy to do. Continue rinsing. Continue to rinse for at least 10 minutes. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Call a poison center/doctor/physician if you feel unwell. Rinse mouth out with water. Remove dentures. Remove victim to fresh air. Make the affected person rest and keep at warm. If the person is fully conscious, make him/her drink water. Never give an unconscious person anything to drink. 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. Get medical advice/attention. If unconscious place in recovery position and seek medical advice. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after skin contact : May cause an allergic skin reaction.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam.

Unsuitable extinguishing media : Do not use water jet.

5.2. Specific hazards arising from the chemical

Fire hazard : Flammable solid. May form combustible dust concentrations in air.

Explosion hazard : Risk of dust explosion if enriched with fine dust in the presence of air.

Hazardous decomposition products in case of fire : Thermal decomposition generates : Ammonia. Carbon dioxide. Carbon monoxide. Nitrogen oxides. Aldehydes. Hydrogen cyanide.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

Other information : Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions). The ATEX Directive defines combustible powders as less than 500 microns in diameter. When processed with flammable liquids/vapors/mists, ignitable (hybrid) mixtures may be formed with combustible dusts. Ignitable mixtures will increase the rate of explosion pressure rise and the MIE will be lower than the pure dust in air mixture. The Lower Explosive Limit (LEL) of the vapor/dust mixture will be lower than the individual LELs for the vapors/mists or dusts. See NFPA 77 for additional guidance.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Avoid creating or spreading dust.

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. No open flames, no sparks, and no smoking. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapors/spray.

6.1.2. For emergency responders

Protective equipment	:	Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up	:	Mechanically recover the product. Notify authorities if product enters sewers or public waters.
Other information	:	Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Ensure good ventilation of the work station. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapors/spray. Wear personal protective equipment. Avoid dust formation. COMBUSTIBLE DUST HANDLING PROCEDURES: Combustible dusts at sufficient concentrations can form explosive mixtures with air. High dust concentrations should be avoided. Follow US NFPA Standard 654, "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids," UK HSE Guidance HSG 103, approved Codes of Practice (ACOPS) established for Explosive Atmospheres under the ATEX Directive 1999/92/EC for worker protection and ATEX Directive 2014/34/EU that regulates equipment and protection systems used in potentially explosive atmospheres or other national guidance on safe handling of combustible dusts. Train workers in the recognition and prevention of hazards associated with combustible dust in the plant. Minimize airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame. Establish good housekeeping practices. Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds. Use continuous suction at points of dust generation to capture and minimize the accumulation of dusts. Particular attention should be given to overhead and hidden horizontal surfaces to minimize the probability of a "secondary" explosion. According to NFPA Standard 654, dust layers 1/32 in.(0.8 mm) thick can be sufficient to warrant immediate cleaning of the area. Control sources of static electricity. This product or the package itself can accumulate static charges, and static discharge can be a source of ignition. Solids handling systems must be designed in accordance with applicable NFPA standards (including 654 and 77) and other national guidance. Do not empty directly into flammable solvents or in the presence of flammable vapors. The operator, the packaging container and all equipment must be grounded with electrical bonding and grounding systems. Plastic bags and plastics cannot be grounded, and antistatic bags do not completely protect against development of static charges.
Hygiene measures	:	Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Separate working clothes from town clothes. Launder separately. Wear personal protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	:	Ground/bond container and receiving equipment.

Storage conditions : Keep cool. Protect from sunlight. Keep away from ignition sources. Store in a well-ventilated place.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Hexamine - Granular

No additional information available

Hexamethylenetetramine ; Hexamine (100-97-0)

USA - ACGIH - Occupational Exposure Limits

Local name	Hexamethylenetetramine
ACGIH OEL TWA	1 mg/m³ (IFV - Inhalable fraction and vapor)
Remark (ACGIH)	TLV® Basis: Dermal sens. Notations: DSEN; A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2022

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Materials for protective clothing:

Wear anti-static discharges clothing and shoes. Foresee ground with earth

Hand protection:

Wear gloves to EN374 to protect against skin effects from powders. Gloves

Eye protection:

In case of dust production: protective goggles. Dust service goggles should be worn to prevent mechanical injury to eyes due to airborne particles which may be associated with this product. Safety glasses

Skin and body protection:

In case of dust production: dustproof clothing

Respiratory protection:

Dust formation: dust mask. Where excessive dust may result, wear approved mask

Personal protective equipment symbol(s):

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	Granules.
Color	:	white
Odor	:	Slight amine
Odor threshold	:	No data available
pH	:	8 – 14
Melting point	:	No data available
Freezing point	:	Not applicable
Boiling point	:	~ 280 °C Sublimes
Flash point	:	Not defined for solids
Relative evaporation rate (butyl acetate=1)	:	Negligible
Flammability (solid, gas)	:	Flammable solid.
Vapor pressure	:	No data available
Relative vapor density at 20 °C	:	No data available
Relative density	:	~ 1.33
Solubility	:	No data available
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Auto-ignition temperature	:	410 °C
Decomposition temperature	:	No data available
Viscosity, kinematic	:	Not applicable
Viscosity, dynamic	:	No data available
Explosion limits	:	Not applicable Lower explosion limit: Not defined for solids (See MEC) Upper explosion limit: Not defined for solids
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Dust deflagration index	:	224 – 347 bar·m/s (typical range)
Dust explosion category	:	St 3 - Very strong explosion

9.2. Other information

Minimum ignition energy	:	< 3 - 5 mJ (typical range)
Dust deflagration index	:	224 – 347 bar·m/s (typical range)
Other properties	:	Company Minimum Explosive Concentration (MEC) 0.015 - 0.030 kg/m3. Company Minimum Ignition Temperature (MIT) 460 - 530°C. Company Minimim Ignition Temparature- Layer 320 - 330°C.

SECTION 10: Stability and reactivity

10.1. Reactivity

Flammable solid.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid dust formation. Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

Reactive or incompatible with the following materials: . Strong oxidizing agents. Strong alkalis. Strong acids. Phenol. Hydrochloric acid.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Hexamethylenetetramine ; Hexamine (100-97-0)	
LD50 oral rat	> 20000 mg/kg Source: ECHA
LD50 dermal rat	> 2000 mg/kg Source: ECHA
ATE US (oral)	20000 mg/kg body weight
ATE US (dermal)	20000 mg/kg body weight

Skin corrosion/irritation : Not classified
pH: 8 – 14

Serious eye damage/irritation : Not classified
pH: 8 – 14

Respiratory or skin sensitization : May cause an allergic skin reaction.
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Hexamethylenetetramine ; Hexamine (100-97-0)	
NOAEL (chronic,oral,animal/male,2 years)	1500 – 2000 mg/kg body weight
NOAEL (chronic,oral,animal/female,2 years)	2000 – 2500 mg/kg body weight

Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified

Hexamethylenetetramine ; Hexamine (100-97-0)	
NOAEL (oral,rat,90 days)	100 mg/kg bodyweight/day

Aspiration hazard : Not classified
Viscosity, kinematic : Not applicable
Symptoms/effects after skin contact : May cause an allergic skin reaction.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

Hexamethylenetetramine ; Hexamine (100-97-0)	
LC50 - Fish [1]	49000 mg/l Source: ECHA
EC50 - Crustacea [1]	36 g/l

Hexamethylenetetramine ; Hexamine (100-97-0)	
LC50 - Fish [2]	49 g/l Test organisms (species): Cyprinodon variegatus
NOEC chronic fish	18 g/l
NOEC chronic crustacea	15 g/l
NOEC chronic algae	1.5 g/l

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Hexamethylenetetramine ; Hexamine (100-97-0)	
Partition coefficient n-octanol/water (Log Pow)	-2.84 Source: ICSC

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

DOT	TDG	IMDG	IATA
14.1. UN number			
1328	UN1328	1328	1328
14.2. Proper Shipping Name			
Hexamethylenetetramine	HEXAMETHYLENETETRAMINE	HEXAMETHYLENETETRAMINE	Hexamethylenetetramine
14.3. Transport hazard class(es)			
4.1	4.1	4.1	4.1
			
14.4. Packing group			
III	III	III	III

DOT	TDG	IMDG	IATA
14.5. Environmental hazards			
Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No
No supplementary information available			

14.6. Special precautions for user

DOT

UN-No.(DOT) : UN1328

DOT Special Provisions (49 CFR 172.102) : A1 - Single packaging are not permitted on passenger aircraft.
IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).
IP3 - Flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner.
T1 - 1.5 178.274(d)(2) Normal..... 178.275(d)(2)
TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) : 151

DOT Packaging Non Bulk (49 CFR 173.xxx) : 213

DOT Packaging Bulk (49 CFR 173.xxx) : 240

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 25 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 100 kg

DOT Vessel Stowage Location : A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.

TDG

UN-No. (TDG) : UN1328

Explosive Limit and Limited Quantity Index : 5 kg

Excepted quantities (TDG) : E1

Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 25 kg

Emergency Response Guide (ERG) Number : 133

IMDG

Limited quantities (IMDG) : 5 kg

Excepted quantities (IMDG) : E1

Packing instructions (IMDG) : P002

IBC packing instructions (IMDG) : IBC08

IBC special provisions (IMDG) : B3

Tank instructions (IMDG) : T1

Tank special provisions (IMDG) : TP33

EmS-No. (Fire)	:	F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE
EmS-No. (Spillage)	:	S-G - SPILLAGE SCHEDULE Golf - FLAMMABLE SOLIDS AND SELF-REACTIVE SUBSTANCES
Stowage category (IMDG)	:	A
Properties and observations (IMDG)	:	White, crystalline powder. Soluble in water.

IATA

PCA Excepted quantities (IATA)	:	E1
PCA Limited quantities (IATA)	:	Y443
PCA limited quantity max net quantity (IATA)	:	10kg
PCA packing instructions (IATA)	:	446
PCA max net quantity (IATA)	:	25kg
CAO packing instructions (IATA)	:	449
CAO max net quantity (IATA)	:	100kg
Special provision (IATA)	:	A803
ERG code (IATA)	:	3L

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

This product or mixture is not known to contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

15.2. International regulations

All substances in this product are listed or exempt from the following inventories:

DSL	NDSL	EC	KECI	TCSI	IECSC	ENCS	NZIoC	PICCS	INSQ	AICIS	NCI
X		X	X	X	X	X	X	X	X	X	X

X = All components are listed or exempted.

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date	:	04/26/2022
Data sources	:	ECHA (European Chemicals Agency). Supplier Safety Data Sheet. Technical testing and analysis.
Training advice	:	No action shall be taken without appropriate training or involving any personal risk. This training must be provided by a qualified staff.

Full text of H-phrases	
H228	Flammable solid
H317	May cause an allergic skin reaction

Abbreviations and acronyms	
LC50	Median lethal concentration
IOELV	Indicative Occupational Exposure Limit Value
INSQ	Mexican national Inventory of Chemical Substances
IMDG	International Maritime Dangerous Goods
IECSC	Inventory of Existing Chemical Substances in China
IATA	International Air Transport Association
IARC	International Agency for Research on Cancer
HSIS	Australia's Hazardous Substances Information System
ENCS	Existing New Chemical Substances- Japan
EN	European Standard
ED	Endocrine disrupting properties
ECL	Existing Chemical List- Korea
EC50	Median effective concentration
EC-No.	European Community number
EC	European Commission
DSL	Domestic Substances List- Canada
DOT	Department of Transport
DNEL	Derived-No Effect Level
DMEL	Derived Minimal Effect level
COD	Chemical oxygen demand (COD)
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
BLV	Biological limit value
BCF	Bioconcentration factor
ATE	Acute Toxicity Estimate
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
CAS-No.	Chemical Abstract Service number
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
N.O.S.	Not Otherwise Specified
NDSL	Non-Domestic Substances List- Canada
NOAEC	No-Observed Adverse Effect Concentration

Abbreviations and acronyms	
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
NZIoC	New Zealand Inventory of Chemicals
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PICCS	Philippines Inventory of Chemicals and Chemical Substances
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STOT	Specific target organ toxicity
TCSI	Taiwan Chemical Substance Inventory
TDG	Transportation of Dangerous Goods
TRGS	Technical Rules for Hazardous Substances
TSCA	Toxic Substances Control Act
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
WGK	Water Hazard Class
AICIS	Australian Industrial Chemicals Introduction Scheme (AICIS)
KECI	Korea Existing Chemicals Inventory (KECI)
NCI	Vietnam - National Chemical Inventory

SDS US

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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, unless specified in the text.