

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifier

Product name: Melamine

Product code: Melamine

Synonym(s): 2,4,6-Triamino-1,3,5-triazine; Aero; Cyanuramide; Cyanurotriamide; Cyanurotriamine; Cymel; Isomelamine

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

General use: Used in the manufacture of resins and resin-based laminates, wood-based panels, coatings, molding powders, paints, adhesives, plastics, concrete plasticizers and flame retardants

Uses advised against: None specified

1.3 Details of the supplier and of the safety data sheet

Manufacturer/Distributor

Methanol Holdings (Trinidad) Limited
 Atlantic Avenue, Point Lisas Industrial Estate
 Point Lisas, Trinidad, West Indies
 +1-868-636-PRMN (7766)

Non-Emergency Contact

North America: HELM U.S. Corporation, +1 (281) 623-0120
Europe: Helm AG, 011-19-40-23750
Trinidad: Methanol Holdings (Trinidad) Limited, +1-868-636-2906

1.4 Emergency telephone number

North America Chemtrec: +1-800-424-9300
Europe Giftinformationszentrum Nord: 011-49-551-19240
Trinidad Proman Trinidad Headquarters: +1 (868)-636-7766

SECTION 2 - HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

Product definition: Substance

Classification in accordance with 29 CFR 1910.1200 (OSHA HCS) and Regulation EC No. 1272/2008

Carcinogenicity, Category 2 [H351]

Reproductive Toxicity, Category 2 [H361d]

Specific Target Organ Toxicity, Repeated Exposure - Category 2; STOT RE 2 [H373]

2.2 Label elements

Hazard symbol(s):



GHS08

Signal word: **Danger**

Hazard statement(s): H351 - Suspected of causing cancer
 H361f - Suspected of damaging fertility
 H373 - May cause damage to the urinary system through prolonged or repeated exposure (ingestion)

Precautionary statements

[Prevention] P203 - Obtain, read and follow all safety instructions before use.
 P260 - Do not breathe mist or vapor.
 P280 - Wear protective gloves, protective clothing and eye protection.
[Response] P318 - IF exposed or concerned, get medical advice.
 P319 - Get medical help if you feel unwell.
[Storage] P405 - Store locked up.
[Disposal] P501 - Dispose of contents and containers in accordance with national and local regulations.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

May form combustible dust concentrations in air.

2.4 Unknown acute toxicity (US)

Not applicable

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

% by Volume	Ingredient	CAS Number	EC Number	Index Number	GHS Classification
≥ 99	Melamine	108-78-1	203-615-4	613-345-00-2	H351, H361f, H373

To the best of our knowledge there are no additional ingredients present in this product 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.

3.2 Mixtures

Not applicable

SECTION 4 - FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation: If product dust causes respiratory irritation or distress, move the exposed person to fresh air immediately. If breathing is difficult or irregular, administer oxygen; if respiratory arrest occurs, start artificial respiration by trained personnel. If unconscious, maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. If symptoms persist or if you feel unwell, seek medical attention.

Eyes: DO NOT RUB EYES. Immediately flush eyes with large amounts of water or saline solution for at least 15 minutes, occasionally lifting the upper and lower lids. Remove contact lenses, if present and easy to do, after first 2 minutes and continue rinsing. If irritation persists seek medical attention, preferably from an ophthalmologist.

Skin: Flush skin with large amounts of water while removing contaminated clothing. Wash the affected area with soap and water followed by thorough rinsing. Wash contaminated clothing and shoes before reuse. If irritation persists or if you feel unwell, seek medical attention.

Ingestion: Rinse mouth with water if the person is conscious. Remove dentures if present. DO NOT induce vomiting unless directed to do so by medical personnel. Vomiting may occur spontaneously. To prevent aspiration of material into the lungs, lay the person on one side with the head lower than the waist. Never give anything by mouth to an unconscious or convulsing person. Do not leave the person unattended. Seek immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Potential health symptoms and effects

Eyes: Causes eye irritation with redness, itching, tearing, swelling and discomfort or pain. May cause mechanical irritation and inflammation of the cornea and surrounding tissues.

Skin: May cause skin irritation with localized redness, itching and discomfort. Prolonged or repeated skin exposure may cause dermatitis or aggravate existing skin disorders.

Inhalation: Inhalation of dust may be irritating to mucous membranes and to the respiratory system. Symptoms include headache, nasal irritation, sneezing, cough and difficulty breathing. Inhalation of decomposition products may cause severe injury or death.

Ingestion: Harmful if ingested. May cause irritation of the digestive tract with nausea, vomiting, abdominal pain and diarrhea. May affect urine output, cause blood in the urine and produce urinary tract disorders. May cause kidney infections and kidney damage.

Chronic: Prolonged exposure may cause urinary bladder stones, diuresis and crystalluria. Kidney damage may occur. Chronic exposure may cause high blood pressure. This substance has caused adverse reproductive and fetal effects in laboratory animals. Melamine is a possible human carcinogen. Refer to Section 11.

4.3 Indication of any immediate medical attention and special treatment needed

Advice to doctor and hospital personnel

Treat symptomatically and supportively.

SECTION 5 - FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable methods of extinction: Use extinguishing media suitable for the surrounding fire.

Unsuitable methods of extinction: No limitations of extinguishing agents are given for this material.

5.2 Special hazards arising from the substance or mixture

Closed containers may rupture due to the buildup of pressure when exposed to extreme heat. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent or may be delayed. Obtain medical attention.

Explosion hazards: This material forms explosive mixtures with air on intense heating. May form combustible dust clouds, posing an explosion hazard.

5.3 Advice to firefighters

Firefighters should wear full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion when exposed to extreme heat. If possible, firefighters should control runoff to prevent environmental contamination. Notify appropriate authorities of potential fire and explosion hazard if liquid enters sewers or waterways.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate non-essential personnel. Avoid dust generation and accumulation. DO NOT inhale dust. Wear appropriate protective clothing and equipment designated in Section 8.2. Ventilate the area. Remove all sources of ignition. NO SMOKING. Clean up spills immediately. Spill creates a slip hazard.

6.2 Environmental precautions

Avoid dispersal of spilled material or runoff and prevent contact with soil and entry into drains, sewers or waterways.

6.3 Methods and materials for containment and cleaning up

Approach spill from upwind direction. DO NOT flush spill down the drain. Cover drains and contain spill. Carefully collect material using non-sparking tools and place into an approved container for proper disposal. Observe possible material restrictions (Sections 7.2 and 10.5). Do not allow material or runoff from rinsing contaminated areas to enter floor drains or storm drains and ditches that lead to waterways. Dispose of contents, containers and waste material via a licensed waste disposal contractor.

6.4 Reference to other sections

See Section 13 for additional waste treatment information.

SECTION 7 - HANDLING AND STORAGE

7.1 Precautions for safe handling

Wear all appropriate personal protective equipment specified in Section 8.2. Do not get in eyes or on skin or clothing. DO NOT inhale dust. NO SMOKING. If normal use of material presents a respiratory hazard, use only adequate ventilation or wear an appropriate respirator. Wash contaminated clothing and shoes before reuse.

Advice on protection against fire and explosion

Keep away from heat, hot surfaces and sources of ignition. Forms explosive mixtures with air on intense heating. Avoid dust generation and accumulation. Forms combustible dust clouds in air.

7.2 Conditions for safe storage, including any incompatibilities

Store in dry, cool, well-ventilated areas away from incompatible materials (see Section 10.5), food and drink. Keep away from heat and ignition sources. Transfer only to approved containers having correct labeling. Keep containers tightly closed when not in use. Protect containers against physical damage. Containers that have been opened must be carefully resealed and kept upright to prevent spillage. Containers are hazardous when empty as they contain product residues. Use appropriate containment to avoid environmental contamination. Ventilate closed areas. Keep locked up and out of reach of children.

DO NOT STACK MORE THAN 2 SUPERSACKS HIGH.

7.3 Specific end uses

Apart from the uses mentioned in Section 1.2, no other specific uses are stipulated.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Engineering measures: Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. Use adequate ventilation. Local exhaust is preferable. Refer to Section 7.1.

Individual protection measures: Wear protective clothing to prevent repeated or prolonged contact with product. Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the representative supplier.

Hygiene measures: Facilities storing or using this material should be equipped with an eyewash station and safety shower. Change contaminated clothing. Preventive skin protection is recommended. Wash hands thoroughly after use, before eating, drinking, smoking or using the lavatory.

Eye/face protection: Wear protective splash goggles or safety glasses with unperforated side shields during use.

Hand protection: Wear Nitrile rubber gloves or those recommended by glove supplier for protection against materials in Section 3. Gloves should be impermeable to chemicals and oil. Breakthrough time of selected gloves must be greater than the intended use period.

Skin protection: Wear protective clothing, if needed. Wear protective boots if the situation requires.

Respiratory protection: Wear a dust mask when handling this product if dust generation is problematic. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks.

Environmental exposure controls: Do not empty into drains.

PPE must not be considered a long-term solution to exposure control. PPE usage must be accompanied by employer programs to properly select, maintain, clean, fit and use. Consult a competent industrial hygiene resource to determine hazard potential and/or the PPE manufacturers to ensure adequate protection



SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	White powder
Odor	Odorless
Odor Threshold	No data available
Molecular Weight	126.12 g/mol

Chemical Formula	C ₃ H ₆ N ₆
pH	7.5 – 8.5 @ 20 °C [ETCE 360]
Melting Point	> 300 °C (> 572 °F)
Initial Boiling Point	No data available
Evaporation Rate	Not applicable
Flammability (solid, gas)	May form combustible dust concentrations in air
Flash Point	300 °C (572 °F), closed cup
Autoignition Temperature	> 600 °C (> 1,112 °F)
Decomposition Temperature	> 350 °C (> 662 °F)
Lower Explosive Limit (LEL)	No data available
Upper Explosive Limit (UEL)	No data available
Vapor Pressure	67 mbar @ 315 °C
Vapor Density	No data available
Density	1.57 g/cc @ 20 °C
Bulk Density	550 - 750 kg/m ³ (34.34 - 46.82 lb/ft ³)
Viscosity	No data available
Solubility in Water	3 - 5 g/l @ 20 °C [approximate]
Partition Coefficient (n-octanol/water)	log P _{ow} = - 1.22 @ 20 °C [ECHA]
Oxidizing Properties	Not applicable
Explosive Properties	Not applicable
Volatiles by Weight @ 21 °C	No data available

9.2 Other Data

Particle characterization	No data available
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SECTION 10 - STABILITY AND REACTIVITY

10.1 Reactivity

This material is stable under normal handling conditions and use.

10.2 Chemical Stability

This material is stable under recommended storage and handling conditions.

10.3 Possibility of hazardous reactions

Releases cyanide fumes when heated to decomposition. Forms explosive mixtures with air on intense heating. May form combustible dust clouds in air. Hazardous polymerization will not occur.

10.4 Conditions to avoid

Avoid strong heating, high temperatures (> 300 °C), sources of ignition, hot surfaces and contact with incompatible materials. Avoid dust generation and accumulation.

10.5 Incompatible materials

Strong oxidizing agents, strong organic acids

10.6 Hazardous decomposition products

Thermal decomposition products include oxides of carbon, nitrogen oxides, ammonia, cyanide, toxic fumes and gases.

SECTION 11 - TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute oral toxicity

LD₅₀, rat: 3,161 mg/kg[literature]

Acute inhalation toxicity

LC₅₀, rat: > 5,190 mg/m³, 4 h, male/female [ECHA]

Acute dermal toxicity

LD₅₀, rabbit: >1,000 mg/kg [ECHA]

Skin irritation

May cause skin irritation.

Eye irritation

Causes eye irritation.

Sensitization

No data available

Carcinogenicity

Suspected of causing cancer.

Germ cell mutagenicity

No data available

Reproductive toxicity

Suspected of damaging fertility.

Specific organ toxicity - single exposure

May cause respiratory irritation.

Specific organ toxicity - repeated exposure

May cause damage to the urinary system through prolonged or repeated exposure.

Aspiration hazard

No data available

11.2 Further information

Melamine (CAS #108-78-1): IARC, Group 2B carcinogen: *Possibly carcinogenic humans*. Not listed as a carcinogen by ACGIH, OSHA or NTP.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12 - ECOLOGICAL INFORMATION**12.1 Toxicity**

Large spills or discharges of this material may be harmful to aquatic life and the environment.

Acute toxicity to fish:

LC₅₀ - Poecillia reticulata (Guppy), 96 h: > 3,000 mg/m³

Acute toxicity aquatic invertebrates:

EC₅₀ - Daphnia magna (Water flea), static test, 48 h: 48 mg/l

Acute toxicity aquatic plants:

EC₅₀ - Scenedesmus pannonicus (Freshwater algae), 4 d: 940 mg/m³

Acute toxicity bacteria:

EC₅₀ - Pseudomonas putida (Bacteria), 30 min: > 10,000 g/m³

12.2 Persistence and degradability

This material is not readily biodegradable.

12.3 Bioaccumulation potential

This substance is not expected to bioaccumulate.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This material is not considered to be persistent, bioaccumulative and toxic (PBT) and not very persistent and very bioaccumulative (vPvB).

12.6 Endocrine disrupting properties

The European Chemicals Agency (ECHA) is currently assessing melamine as a suspected endocrine disrupting chemical (EDC) and up-to-date science provides evidence of hormonal disruption.

12.7 Other effects**Additional ecological information**

Do not allow material to run into surface waters, wastewater or soil.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13 - DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods**

Methods of disposal: The generation of waste should be avoided or minimized whenever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

RCRA U-Series: No listings above the reportable threshold (de minimis)

SECTION 14 - TRANSPORT INFORMATION

Note: Transportation information provided is for reference only. Customer is urged to consult 49 CFR 100 - 177, IMDG, IATA, EC, United Nations TDG and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

USA DOT (Ground Transportation)	NOT REGULATED FOR TRANSPORT
TDG (Transportation of Dangerous Goods)	NOT REGULATED FOR TRANSPORT
IMO/IMDG (Water Transportation)	NOT REGULATED FOR TRANSPORT
ICAO/IATA (Air Transportation)	NOT REGULATED FOR TRANSPORT
RID/ADR (Rail Transportation)	NOT REGULATED FOR TRANSPORT

SECTION 15 - REGULATORY INFORMATION

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

U. S. Federal Regulations

OSHA Hazard Communication Standard: This material is classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

OSHA Process Safety Management Standard: This product is not regulated under OSHA PSM Standard 29 CFR 1910.119.

EPA Risk Management Planning Standard: This product is not regulated under EPA RMP Standard (RMP) 40 CFR Part 68.

EPA Federal Insecticide, Fungicide and Rodenticide Act: This product is not a registered Pesticide under the FIFRA, 40 CFR Part 150.

Toxic Substance Control Act (TSCA) Inventory: All substances in this product are listed on the TSCA Inventory. This product is not subject to TSCA 12(b) Export Notification.

TSCA Section 5(a)(2) Significant New Use Rule (SNUR) for Existing Chemicals: This substance is not subject to a Significant New Use Rule.

EPA Safe Drinking Water Act (SDWA): This substance is not regulated under the SDWA.

Drug Enforcement Administration (DEA) List 2, Essential Chemicals (21 CFR 1310.02(b)) and 1310.4(f)(2)) and Chemical Code Number
No listing

Drug Enforcement Administration (DEA) Lists 1 & 2, Exempt Chemical Mixtures (21 CFR 1310.12(c)) and Code Number: No listing

Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) Chemicals: No listing

Superfund Amendments and Reauthorization Act (SARA)

SARA Section 311/312 Hazard Categories

May form combustible dust concentrations in air [HNOC]

Suspected of damaging fertility

Suspected of causing cancer

Suspected of damaging organs through prolonged or repeated exposure

SARA 313 Information: None of the components of this product are subject to the reporting levels established by Section 313 of the Emergency Planning and Community Right-to Know Act of 1986.

SARA 302/304 Extremely Hazardous Substance: None of the components of the product exceed the threshold (de minimis) reporting levels established by these sections of Title III of SARA.

SARA 302/304 Emergency Planning & Notification: None of the components of the product exceed the threshold (de minimis) reporting levels established by these sections of Title III of SARA.

Comprehensive Response Compensation and Liability Act (CERCLA): No components of the product exceed the threshold (de minimis) reporting levels for hazardous wastes established by CERCLA.

Clean Air Act (CAA)

This product does not contain any Hazardous Air Pollutants (HAPs) designated in CAA Section 112 (b).

This product does not contain Class 1 Ozone depleters.

This product does not contain Class 2 Ozone depleters.

Clean Water Act (CWA)

This product does not contain Hazardous Substances.

This product does not contain Priority Pollutants.

This product does not contain Toxic Pollutants.

U.S. State Regulations

California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986

This product contains no chemical(s) known to the state of California to cause cancer, birth defects or reproductive harm in concentrations that exceed the threshold (de minimis) reporting levels established under Proposition 65.

Other U.S. State Inventories

Melamine (CAS #108-78-1) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists: MA, MN, NY, PA.

Canada

WHMIS Hazard Classification: This product could belong to the hazard class *combustible dust*, based on various factors related to the combustibility and explosiveness of its dust, including composition, shape and size of the particles.

Canadian National Pollutant Release Inventory (NPRI): This substance is not listed on the NPRI.

European Economic Community

WGK, Germany (Water danger/protection): 2 (obviously hazardous to water)

Global Chemical Inventory Lists

Country	Inventory Name	Listed
Canada	Domestic Substance List (DSL)	Yes
Canada	Non-Domestic Substance List (NDSL)	No
Europe	Inventory of New and Existing Chemicals (EINECS)	Yes
United States	Toxic Substance Control Act (TSCA)	Yes
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
New Zealand	New Zealand Inventory of Chemicals (NZIoC)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes

Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (KECI)	Yes
Philippines	Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Yes

*Yes - All components of this product comply with the inventory requirements administered by the governing country.

No - One or more components of this product are not on the inventory or are exempt from listing or will require registration.

15.2 Chemical safety assessment

A chemical safety assessment was not carried out For this product.

SECTION 16 - OTHER INFORMATION

Hazardous Material Information System (HMIS)

HEALTH	*	2
FLAMMABILITY		1
PHYSICAL HAZARD		0
PERSONAL PROTECTION		F

F = safety glasses, gloves,
apron & dust mask

HMIS Hazard Rating Legend

0 = Minimal, 1 = Slight, 2 = Moderate

3 = Serious, 4 = Severe

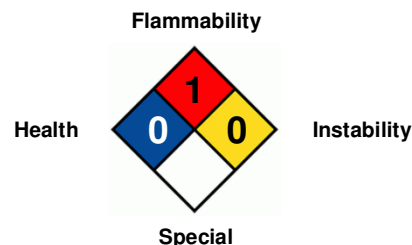
* = Chronic Health Hazard

NFPA Hazard Rating Legend

0 = Insignificant, 1 = Slight, 2 = Moderate, 3

= High, 4 = Extreme

National Fire Protection Association (NFPA)



Abbreviation Key

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	Accord Dangereux Routier (European regulations concerning the international transport of dangerous goods by road)
CAS	Chemical Abstract Services
CFR	Code of Federal Regulations
COC	Cleveland Open Cup
DOT	Department of Transportation
EC₅₀	Half maximal effective concentration
EMS	Emergency Response Procedures for Ships Carrying Dangerous
EPA	Environmental Protection Agency
ErC₅₀	Reduction of Growth Rate
ERG	Emergency Response Guidebook
FDA	Food and Drug Administration
GHS	Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
HCS	Hazard Communication Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IC₅₀	Half Maximal Inhibitory Concentration
ICAO	International Civil Aviation Organization
IDLH	Immediately Dangerous to Life and Health
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
LC₅₀	50% Lethal Concentration
LD₅₀	50% Lethal Dose

LD_{Lo}	Lowest Lethal Dose
mppcf	Millions of Particles Per Cubic Foot
NA	North America
NAERG	North American Emergency Response Guidebook
NIOSH	National Institute for Occupational Safety & Health
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PBT	Persistent, Bioaccumulating and Toxic
PEL	Permissible exposure limit
PMCC	Pensky-Martens Closed Cup
ppm	Parts Per Million
RCRA	Resource Conservation and Recovery Act
RID	Dangerous Goods by Rail
RQ	Reportable Quantity
TCC/Tag	Tagliabue Closed Cup
TLV	Threshold Limit Value
TSCA	Toxic Substance Control Act
TWA	Time-weighted Average
UN	United Nations
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulating
WHMIS	Workplace Hazardous Materials Information System

DISCLAIMER OF RESPONSIBILITY

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