1. PRODUCT AND COMPANY IDENTIFICATION

Company

Arkema Inc.
900 First Avenue
King of Prussia, Pennsylvania 19406

Specialty Polyamides

Customer Service Telephone Number: (800) 932-0420
(Monday through Friday, 8:00 AM to 5:00 PM EST)

Emergency Information

Transportation: CHEMTREC: (800) 424-9300
(24 hrs., 7 days a week)
Medical: Rocky Mountain Poison Center: (866) 767-5089
(24 hrs., 7 days a week)

Product Information

Product name: RILSAN® MB 3000
Synonyms: Not available
Molecular formula: Mixture
Chemical family: polyamide
Product use: Mouldings and Extrusion

2. HAZARDS IDENTIFICATION

Emergency Overview
Color: Clear - colourless
Physical state: solid
Form: pellets
Odor: none

***Classification of the substance or mixture:**
Specific target organ toxicity - repeated exposure, Category 2, H373

*For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labelling

Hazard pictograms:

Signal word: **Warning**

Hazard statements:

H373 : May cause damage to organs through prolonged or repeated exposure.

Supplemental Hazard Statements:

Specific target organ toxicity - repeated exposure:
kidney.
Processing may release vapors and/or fumes which cause eye, skin and respiratory tract irritation.

Precautionary statements:

Prevention:

P260 : Do not breathe gas/mist/vapours/spray.

Response:

P314 : Get medical advice/ attention if you feel unwell.

Disposal:

P501 : Dispose of contents/ container to an approved waste disposal plant.

Supplemental information:

Potential Health Effects:

Contains high molecular weight polymer(s). Effects due to processing releases: Irritating to eyes, respiratory system and skin.
Prolonged or repeated exposure may cause: headache, drowsiness, nausea, weakness, (severity of effects depends on extent of exposure).

Other:

This product may release fume and/or vapor of variable composition depending on processing time and temperature.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Wt/Wt	GHS Classification**
Undecanoic acid, 11-amino-, homopolymer	25587-80-8	>= 83 %	Not classified
Additives	Proprietary*	< 12 %	H373

1,3-Propanediol, 2,2-bis(hydroxymethyl)-	115-77-5	< 2 %	Not classified

*The specific chemical identity is withheld because it is trade secret information of Arkema Inc.

**For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1. Description of necessary first-aid measures:

Inhalation:
If inhaled, remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Skin:
In case of contact, immediately flush skin with plenty of water. If molten polymer gets on the skin, cool rapidly with cold water. Do not peel solidified product off the skin. Obtain medical treatment for thermal burns. Remove material from clothing. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eyes:
Immediately flush eye(s) with plenty of water. Obtain medical treatment for thermal burns.

Ingestion:
If swallowed, DO NOT induce vomiting. Get medical attention. Never give anything by mouth to an unconscious person.

4.2. Most important symptoms/effects, acute and delayed:

For most important symptoms and effects (acute and delayed), see Section 2 (Hazard Statements and Supplemental Information) and Section 11 (Toxicology Information) of this SDS.

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

Unless otherwise noted in Notes to Physician, no specific treatment noted; treat symptomatically.

5. FIREFIGHTING MEASURES

Extinguishing media (suitable):
Water spray, Carbon dioxide (CO2), Foam

Protective equipment:
Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand / NIOSH approved or equivalent).

Further firefighting advice:
Fire fighting equipment should be thoroughly decontaminated after use.

Fire and explosion hazards:

When burned, the following hazardous products of combustion can occur:
Carbon oxides
Hazardous organic compounds
Hydrogen cyanide (hydrocyanic acid)
(traces)

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, Emergency procedures, Methods and materials for containment/clean-up:
Prevent further leakage or spillage if you can do so without risk. Ventilate the area. Sweep up and shovel into suitable properly labeled containers for prompt disposal. Possible fall hazard – floor may become slippery from leakage/spillage of product. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

Protective equipment:
Appropriate personal protective equipment is set forth in Section 8.

7. HANDLING AND STORAGE

Handling

General information on handling:
Do not taste or swallow.
Avoid breathing dust.
Avoid prolonged contact with eyes, skin and clothing.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.
Emptied container retains product residue.
Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

Storage

General information on storage conditions:
Keep in a dry, cool place. Store in closed containers, in a secure area to prevent container damage and subsequent spillage. Store away from moisture and heat to maintain the technical properties of the product.

Storage stability – Remarks:
Stable under normal conditions.

Storage incompatibility – General:
None known.

Temperature tolerance – Do not store above:
140 °F (60 °C)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne Exposure Guidelines:

1,3-Propanediol, 2,2-bis(hydroxymethyl)- (115-77-5)

US. ACGIH Threshold Limit Values

Time weighted average	10 mg/m3

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Form:	Respirable fraction.
PEL:	5 mg/m3
Form:	Total dust
PEL:	15 mg/m3

Only those components with exposure limits are printed in this section. Limits with skin contact designation above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required. Limits with a sensitizer designation above mean that exposure to this material may cause allergic reactions.

Engineering controls:
Investigate engineering techniques to reduce exposures below airborne exposure limits or to otherwise reduce exposures. Provide ventilation if necessary to minimize exposures or to control exposure levels to below airborne exposure limits (if applicable see above).If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Respiratory protection:
Avoid breathing dust. Where airborne exposure is likely or airborne exposure limits are exceeded (if applicable, see above), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components (full facepiece recommended). Consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure or where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Skin protection:
Wear appropriate chemical resistant protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine appropriate type glove material for given application. Rinse immediately if skin is contaminated. Wash contaminated clothing and clean protective equipment before reuse. Wash thoroughly after handling.

Eye protection:
Where eye contact may be likely, wear chemical goggles and have eye flushing equipment available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	Clear - colourless
Physical state:	solid
Form:	pellets
Odor:	none
Odor threshold:	No data available
Flash point	No data available
Auto-ignition temperature:	788 - 842 °F (420 - 450 °C)
Lower flammable limit (LFL):	Not applicable
Upper flammable limit (UFL):	Not applicable
pH:	No data available
Density:	No data available
Bulk density:	550 - 650 kg/m3
Vapor pressure:	No data available
Vapor density:	No data available
Boiling point/boiling range:	No data available
Melting point/range:	No data available.
Freezing point:	No data available.
Evaporation rate:	No data available
Solubility in water:	insoluble
Solubility in other solvents: [qualitative and quantative]	Soluble in:
	Metacresol
	Formic acid (concentrate), Sulphuric acid (concentrate)
	Phenols

	Benzyl alcohol
Viscosity, dynamic:	No data available
Oil/water partition coefficient:	No data available
Thermal decomposition	> 464 °F (> 240 °C)
Flammability:	See GHS Classification in Section 2

10. STABILITY AND REACTIVITY

Stability:
The product is stable under normal handling and storage conditions.

Hazardous reactions:
Hazardous polymerization does not occur.None known.

Materials to avoid:
None known.

Conditions / hazards to avoid:
Store protected from moisture and heat. (to maintain the technical properties of the product). See Hazardous Decomposition Products below.

Hazardous decomposition products:

Thermal decomposition giving toxic, flammable, and / or corrosive products:
Carbon oxides
Ammonia
Hydrogen cyanide (hydrocyanic acid)
(traces)
Hazardous organic compounds
Amine derivatives

11. TOXICOLOGICAL INFORMATION

Data on this material and/or its components are summarized below.

Data for Undecanoic acid, 11-amino-, homopolymer (25587-80-8)

Acute toxicity

Oral:
No deaths occurred. (Rat) LD0 > 2,000 mg/kg.

Dermal:
No deaths occurred. (Rat) LD0 > 2,000 mg/kg.

Skin Irritation:
Not irritating. (In vitro)

Eye Irritation:
Not corrosive (Bovine cornea)

Skin Sensitization:
Not a sensitizer. LLNA: Local Lymph Node Assay. (Mouse) No effect is reported.

Repeated dose toxicity
Subchronic dietary administration to rat, dog / No adverse systemic effects reported.

Genotoxicity

Assessment in Vitro:
No genetic changes were observed in laboratory tests using: bacteria

Other information
The information presented is from representative materials with this Chemical Abstract Service (CAS) Registry number. The results vary depending on the size and composition of the test substance.

Data for Additives (Proprietary)

Acute toxicity

Oral:
No deaths occurred. (rat) LD0 > 2,000 mg/kg.

Dermal:
Practically nontoxic. (rat) LD50 = 5,520 mg/kg.

Inhalation:
No deaths occurred (rat) LC0 > 2.23 mg/l. (dust)

Skin Irritation:
Not irritating. (rabbit) Irritation Index: 0/8.

Eye Irritation:
Causes mild eye irritation. (rabbit)

Skin Sensitization:
Not a sensitizer. Guinea pig maximization test. No skin allergy was observed

Repeated dose toxicity
Repeated oral, inhalation administration to rat / affected organ(s): kidney / signs: changes in organ structure or function

Specific target organ toxicity - repeated exposure:
May cause damage to organs through prolonged or repeated exposure. (kidney)

Genotoxicity

Assessment in Vitro:
No genetic changes were observed in laboratory tests using: bacteria, animal cells

Data for 1,3-Propanediol, 2,2-bis(hydroxymethyl)- (115-77-5)

Acute toxicity

Oral:
Practically nontoxic. (rat) LD0 > 5,000 mg/kg.

Dermal:
Practically nontoxic. (rabbit) LD0 > 10,000 mg/kg.

Inhalation:
Practically nontoxic. (rat) 6 h LC0 = 11 mg/l. (dust)

Skin Irritation:
Not irritating. (rabbit) Irritation Index: 0/8,0. (4 h) (occluded exposure)

Eye Irritation:
Not irritating. (rabbit)

Repeated dose toxicity
Repeated oral administration to rat / No adverse systemic effects reported.

Genotoxicity

Assessment in Vitro:
No genetic changes were observed in laboratory tests using: bacteria, animal cells

Developmental toxicity

Reproductive/Developmental Effects Screening Assay. oral (rat) / No birth defects were observed.

Reproductive effects
Reproductive/Developmental Effects Screening Assay. oral (rat) / No toxicity to reproduction

Human experience
Skin contact:
Eczema.

Human experience
Ingestion:
Increased pulse rate.

12. ECOLOGICAL INFORMATION

Chemical Fate and Pathway
Data on this material and/or its components are summarized below.

Data for Additives (Proprietary)

Biodegradation:
Not readily biodegradable. (28 d) biodegradation 3 %

Octanol Water Partition Coefficient:
log Pow -2.28 (calculated)

Data for 1,3-Propanediol, 2,2-bis(hydroxymethyl)- (115-77-5)

Biodegradation:
Readily biodegradable. (27 - 28 d) biodegradation 84 %

Octanol Water Partition Coefficient:
log Pow -1.7

Ecotoxicology
Data on this material and/or its components are summarized below.

Data for Additives (Proprietary)

Aquatic toxicity data:
No effect up to the limit of solubility. Brachydanio rerio (zebrafish) 96 h LC50 > 10,000 mg/l (Nominal concentration)

Microorganisms:
Respiration inhibition / Activated sludge 3 h EC50 > 10,000 mg/l

Data for 1,3-Propanediol, 2,2-bis(hydroxymethyl)- (115-77-5)

Aquatic toxicity data:
Practically nontoxic. Oryzias latipes (Orange-red killifish) 96 h LC0 > 100 mg/l

Aquatic invertebrates:
Practically nontoxic. Daphnia magna (Water flea) 24 h EC0 > 1,000 mg/l

Algae:
Practically nontoxic. Selenastrum capricornutum (green algae) 72 h EC50 > 1,000 mg/l

Microorganisms:
Activated sludge 3 h EC50 (Respiration inhibition) > 1,000 mg/l

Chronic toxicity to aquatic invertebrates:
Daphnia magna (Water flea) 21 d NOEC = 1,000 mg/l

Chronic toxicity to aquatic plants:
Practically nontoxic. Selenastrum capricornutum 14 d NOEC >= 5000 mg/l

13. DISPOSAL CONSIDERATIONS

Waste disposal:
Where possible recycling is preferred to disposal or incineration. If recycling is not an option, incinerate or dispose of in accordance with federal, state, and local regulations. Pigmented, filled and/or solvent laden product may require special disposal practices in accordance with federal, state and local regulations. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

14. TRANSPORT INFORMATION

US Department of Transportation (DOT): not regulated

International Maritime Dangerous Goods Code (IMDG): not regulated

15. REGULATORY INFORMATION

Chemical Inventory Status

EU. EINECS	EINECS	Conforms to
United States TSCA Inventory	TSCA	The components of this product are all on the TSCA Inventory.
Canadian Domestic Substances List (DSL)	DSL	All components of this product are on the Canadian DSL
China. Inventory of Existing Chemical Substances in China (IECSC)	IECSC (CN)	Conforms to
Japan. ENCS - Existing and New Chemical Substances Inventory	ENCS (JP)	Conforms to
Japan. ISHL - Inventory of Chemical Substances	ISHL (JP)	Conforms to
Korea. Korean Existing Chemicals Inventory (KECI)	KECI (KR)	Conforms to
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	PICCS (PH)	Conforms to
Australia Inventory of Chemical Substances (AICS)	AICS	Conforms to

United States – Federal Regulations

SARA Title III – Section 302 Extremely Hazardous Chemicals:

The components in this product are either not SARA Section 302 regulated or regulated but present in negligible concentrations.

SARA Title III - Section 311/312 Hazard Categories:
Chronic Health Hazard

SARA Title III – Section 313 Toxic Chemicals:
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - Reportable Quantity (RQ):

The components in this product are either not CERCLA regulated, regulated but present in negligible concentrations, or regulated with no assigned reportable quantity.

United States – State Regulations

New Jersey Right to Know

Chemical name	CAS-No.
1,3-Propanediol, 2,2-bis(hydroxymethyl)-	115-77-5

Pennsylvania Right to Know

Chemical name	CAS-No.
Undecanoic acid, 11-amino-, homopolymer	25587-80-8
Additives	Proprietary
1,3-Propanediol, 2,2-bis(hydroxymethyl)-	115-77-5

California Prop. 65
This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive defects.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H373 May cause damage to organs through prolonged or repeated exposure.

Latest Revision(s):

Reference number:	000000026773
Date of Revision:	11/10/2016
Date Printed:	11/16/2016

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Arkema has implemented a Medical Policy regarding the use of Arkema products in Medical Devices applications that are in contact with the body or circulating bodily fluids (http://www.arkema.com/en/social-responsibility/responsible-product-management/medical-device-policy/index.html) Arkema has designated Medical grades to be used for such Medical Device applications. Products that have not been designated as Medical grades are not authorized by Arkema for use in Medical Device applications that are in

contact with the body or circulating bodily fluids. In addition, Arkema strictly prohibits the use of any Arkema products in Medical Device applications that are implanted in the body or in contact with bodily fluids or tissues for greater than 30 days. The Arkema trademarks and the Arkema name shall not be used in conjunction with customers' medical devices, including without limitation, permanent or temporary implantable devices , and customers shall not represent to anyone else, that Arkema allows, endorses or permits the use of Arkema products in such medical devices.
It is the sole responsibility of the manufacturer of the medical device to determine the suitability (including biocompatibility) of all raw materials, products and components, including any medical grade Arkema products, in order to ensure that the final end-use product is safe for its end use; performs or functions as intended; and complies with all applicable legal and regulatory requirements (FDA or other national drug agencies) It is the sole responsibility of the manufacturer of the medical device to conduct all necessary tests and inspections and to evaluate the medical device under actual end-use requirements and to adequately advise and warn purchasers, users, and/or learned intermediaries (such as physicians) of pertinent risks and fulfill any postmarket surveillance obligations. Any decision regarding the appropriateness of a particular Arkema material in a particular medical device should be based on the judgment of the manufacturer, seller, the competent authority, and the treating physician.