SECTION 1. IDENTIFICATION

Identification of the company:	Clariant Corporation 500 East Morehead Street Charlotte, NC, 28202 Telephone No.: +1 704 331 7000 **Information of the substance/preparation:** Product Stewardship, +1-704-331-7710 e-mail: SDS.NORAM@clariant.com **Emergency tel. number:** +1 800-424-9300 CHEMTREC

Trade name:	**Exolit AP 422**
Material number:	106959
CAS number:	68333-79-9
Primary product use:	Flame retardants
Chemical family:	ammonium polyphosphate

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazards for the product as supplied

Carcinogenicity : Category 2

Reproductive toxicity : Category 2

Other hazards

No hazards to be specially mentioned.

GHS label elements

Hazard pictograms :

Signal word : Warning

Hazard statements : H351 Suspected of causing cancer.
H361f Suspected of damaging fertility.

Precautionary statements : **Prevention:**

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.

P280 Wear protective gloves, protective clothing, eye protection and face protection.

Response:

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Storage:

P405 Store locked up.

Disposal:

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

Hazards resulting from a reaction with other chemicals under normal conditions of use:

Conditions	Chemicals formed	Hazards
Reacts with Strong bases	Ammonium hydroxide	Harmful if swallowed. Causes severe skin burns and eye damage.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Substance name : ammonium polyphosphate

CAS-No. : 68333-79-9

Components

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
Melamine	108-78-1*	>= 0.1 - <= 1	TSC

* Indicates that the identifier is a CAS No.
TSC- the actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

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

If inhaled : Move the victim to fresh air.
Give oxygen or artificial respiration if needed.
Get immediate medical advice/ attention.
Never give anything by mouth to an unconscious person.

In case of skin contact : Wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention.

In case of eye contact	:	Flush eyes with water at least 15 minutes. Get medical attention if eye irritation develops or persists.
If swallowed	:	If swallowed, DO NOT induce vomiting. Do not give anything to drink. Call a physician immediately.
Most important symptoms and effects, both acute and delayed	:	The possible symptoms known are those derived from the labelling (see section 2). No additional symptoms are known. Suspected of causing cancer. Suspected of damaging fertility.
Notes to physician	:	Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Water spray jet Foam
Unsuitable extinguishing media	:	High volume water jet Carbon dioxide (CO2) Dry powder
Specific hazards during firefighting	:	In case of fires, hazardous combustion gases are formed: Carbon monoxide (CO) Carbon dioxide (CO2) Ammonia
Further information	:	Exercise caution when fighting any chemical fire. Use NIOSH approved self-contained breathing apparatus and full protective clothing. Fire fighters should wear full protective clothing including a NIOSH approved self-contained breathing apparatus. During a fire, irritating and/or toxic gases from combustion/decomposition products may be present. Wear suitable protective equipment.
Special protective equipment for firefighters	:	Wear personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Wear suitable protective equipment. For disposal considerations see section 13. Wear proper protective equipment. Carefully shovel or sweep up spilled material and place in suitable container. Avoid generating dust. Do not discharge into storm drains or the

aquatic environment.

Environmental precautions : The product should not be allowed to enter drains, water courses or the soil.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion : No special measures necessary.

Advice on safe handling : Use personal protective equipment.
Store in a dry place.
Keep away from heat.
Store in original container.
Keep container tightly closed.

Conditions for safe storage : Keep container tightly closed.

Further information on storage conditions : Store in original container.
Keep container tightly closed.
Store in a cool, dry, well-ventilated area.

Materials to avoid : Do not store together with acids and ammonium salts.

Further information on storage stability : The product has an indefinite shelf life when stored properly.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Melamine	108-78-1	TWA	3 mg/m3	US WEEL

Engineering measures : Local ventilation recommended - mechanical ventilation may be used.

Personal protective equipment

Respiratory protection : Use NIOSH/MSHA approved respirators following manufacturer's recommendations where dust or fume may be generated.

Hand protection
Remarks : Butyl Rubber, PVC Or Neoprene.

Minimum thickness (glove): not determined Minimum

breakthrough time (glove): not determined

Eye protection	:	Safety glasses or chemical splash goggles.
Skin and body protection	:	Wear suitable protective equipment.
Protective measures	:	Observe the usual precautions for handling chemicals.
Hygiene measures	:	Wash hands before breaks and at the end of workday. When using do not eat, drink or smoke. Use protective skin cream before handling the product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	powder
Colour	:	white
Odour	:	odourless
Odour Threshold	:	not determined
pH	:	approx. 6.5 (77 °F / 25 °C) Concentration: 10 g/l (aqueous suspension)
Decomposition temperature	:	> 527 °F / > 275 °C
Boiling point	:	Not applicable
Flash point	:	Not applicable
Evaporation rate	:	no data available
Flammability (solid, gas)	:	Not classified as a flammability hazard Not expected to form explosive dust-air mixtures.
Self-ignition	:	>= 752 °F / >= 400 °C >= 752 °F / >= 400 °C Method: VDI 2263 (Grewer) The sample was mixed 1:1 with diatomaceous earth.
Burning number	:	1
Upper explosion limit / upper	:	Not applicable

flammability limit		
Lower explosion limit / Lower flammability limit	:	Not applicable
Vapour pressure	:	no data available
Relative vapour density	:	no data available
Relative density	:	no data available
Density	:	1.9 g/cm3 (77 °F / 25 °C)
Bulk density	:	approx. 700 kg/m3 (68 °F / 20 °C)
Solubility(ies)		
Water solubility	:	approx. 5 g/l (77 °F / 25 °C)
Partition coefficient: n-octanol/water	:	not tested.
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	> 527 °F / > 275 °C Heating rate: 5 K/min Method: DTA start of decomposition
Viscosity		
Viscosity, dynamic	:	<= 100 mPa.s (77 °F / 25 °C)
Viscosity, kinematic	:	Not applicable
Explosive properties	:	Not explosive GLP: no
Oxidizing properties	:	The substance or mixture is not classified as oxidizing. Method: Expert judgement GLP: no
Self-heating substances	:	The substance or mixture is not classified as self heating.
Impact sensitivity	:	Not impact sensitive.
Molecular weight	:	no data available
Dust explosion class	:	see user defined free text
Metal corrosion rate	:	Not applicable

Particle size : <= 100 µm

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No dangerous reaction known under conditions of normal use.

Chemical stability : The product is chemically stable.

Possibility of hazardous reactions : Contact with strong bases liberates ammonia.
Stable

Conditions to avoid : Protect from heat/overheating.
Alkalis

Incompatible materials : Alkalis

Hazardous decomposition products : Ammonia

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Eye contact
Skin contact
Inhalation

Acute toxicity

Not classified

Product:

Acute oral toxicity : LD50 (Rat, female): 4,740 mg/kg
Method: Other
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : Remarks: no data available

Components:

Melamine:

Acute oral toxicity : LD50 (Rat, male and female): 3,161 - 3,828 mg/kg
Method: Other
GLP: No information available.
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.19 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

GLP: yes
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : Remarks: no data available

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Product:

Species	:	Rabbit
Exposure time	:	24 h
Assessment	:	No skin irritation
Method	:	Other

Components:

Melamine:

Species	:	Rabbit
Exposure time	:	4 h
Method	:	OECD Test Guideline 404
Result	:	No skin irritation
GLP	:	yes

Serious eye damage/eye irritation

Based on available data, the classification criteria are not met.

Product:

Species	:	rabbit eye
Result	:	No eye irritation
Exposure time	:	1 h
Method	:	Other

Components:

Melamine:

Species	:	Rabbit
Result	:	No eye irritation
Method	:	Other
GLP	:	no

Respiratory or skin sensitisation

Skin sensitisation

Based on available data, the classification criteria are not met.

Respiratory sensitisation

Not classified

Product:

Test Type : Maximisation Test

Species	:	Guinea pig
Method	:	Maximisation Test
Result	:	Not a skin sensitizer.

Components:

Melamine:

Test Type	:	Maximisation Test
Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Not a skin sensitizer.
GLP	:	yes

Germ cell mutagenicity

Not classified

Product:

Genotoxicity in vitro	:	Remarks: not tested.
Germ cell mutagenicity - Assessment	:	Not mutagenic in Ames Test

Components:

Melamine:

Genotoxicity in vitro	:	Test Type: Ames test Test system: Salmonella typhimurium Concentration: 50 - 5000 µg/plate Metabolic activation: with and without metabolic activation Method: Ames test Result: negative GLP: yes Test Type: Chromosome aberration test in vitro Test system: Chinese hamster ovary cells Concentration: 240 - 300 µg/ml Metabolic activation: with and without metabolic activation Method: Other Result: negative GLP: No information available. Test Type: In vitro gene mutation study in mammalian cells Test system: Chinese hamster ovary cells Concentration: 600 - 1000 µg/ml Metabolic activation: with and without metabolic activation Method: Other Result: negative GLP: yes
Genotoxicity in vivo	:	Test Type: Chromosome Aberration Test

Species: Mouse (male and female)
Strain: CD1
Cell type: Bone marrow
Application Route: oral (gavage)
Exposure time: 1 - 2 treatments, 24 h
Dose: 1000 - 10000 - 20000 mg/kg
Method: Other
Result: negative
GLP: yes

Germ cell mutagenicity - Assessment : In vitro tests did not show mutagenic effects, In vivo tests did not show mutagenic effects

Carcinogenicity

Suspected of causing cancer.

Components:

Melamine:

Species	:	Rat, male and female
Application Route	:	oral (feed)
Exposure time	:	103 w
Control Group	:	yes
Frequency of Treatment	:	daily
	:	126 mg/kg bw/day
Method	:	Other
Result	:	equivocal
GLP	:	No information available.

Carcinogenicity - Assessment : Suspected human carcinogens

IARC Group 2B: Possibly carcinogenic to humans
Melamine 108-78-1

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Suspected of damaging fertility.

Components:

Melamine:

Effects on fertility : Test Type: Fertility/early embryonic development
Species: Other
Method: Other
Remarks: Fertility and developmental toxicity tests did not reveal any effect on reproduction.

Effects on foetal development	:	Test Type: Pre-natal Species: Rat, female Strain: wistar Application Route: oral (feed) Dose: 136, 400, 1060 mg/kg bw/day General Toxicity Maternal: NOAEL: 400 mg/kg body weight Teratogenicity: NOAEL: 1,060 mg/kg body weight Method: OECD Test Guideline 414 GLP: yes
Reproductive toxicity - Assessment	:	Some evidence of adverse effects on sexual function and fertility, based on animal experiments. Embryotoxicity classification not possible from current data.

STOT - single exposure

Not classified

Product:

Remarks : no data available

Components:

Melamine:

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure

Not classified

Product:

Remarks : no data available

Components:

Melamine:

Target Organs : Urinary tract
Assessment : May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Product:

Remarks : not tested.

Components:

Melamine:

Species : Rat, male and female
NOAEL : 72 mg/kg bw/day

Application Route	:	oral (feed)
Exposure time	:	13 w
Dose	:	750 - 18000 ppm nominal in die
Control Group	:	yes
Method	:	Repeated Dose Toxicity (subchronic study)
GLP	:	No information available.
Target Organs	:	Urinary system, Bladder

Application Route	:	Inhalation
Remarks	:	This information is not available.

Application Route	:	Skin contact
Remarks	:	This information is not available.

Aspiration toxicity

Not classified

Product:

no data available

Components:

Melamine:

No aspiration toxicity classification

Experience with human exposure

Product:

General Information	:	The possible symptoms known are those derived from the labelling (see section 2).

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): > 500 mg/l Exposure time: 96 h Method: Other
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: no data available
Toxicity to algae/aquatic plants	:	Remarks: no data available
Toxicity to microorganisms	:	Remarks: no data available

Components:

Melamine:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 3,000 mg/l
End point: mortality
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: no
Method: Other
GLP: no
Remarks: The details of the toxic effect relate to the nominal concentration.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia sp. (water flea)): 200 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: no
Method: Regulation (EC) No. 440/2008, Annex, C.2
GLP: yes
Remarks: The details of the toxic effect relate to the nominal concentration.

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 325 mg/l
End point: Growth rate
Exposure time: 96 h
Test Type: static test
Analytical monitoring: no data available
Method: Other
GLP: yes
Remarks: The details of the toxic effect relate to the nominal concentration.

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): >= 5.1 mg/l
End point: length of young fish
Exposure time: 36 d
Test Type: flow-through test
Analytical monitoring: yes
Method: OECD Test Guideline 210
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia sp. (water flea)): >= 11 mg/l
End point: Reproduction rate
Exposure time: 21 d
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 211
GLP: yes

Toxicity to microorganisms : EC0 (Natural microorganism): > 100 mg/l
Exposure time: 2 h
Test Type: static test

Analytical monitoring: yes
Method: Other
GLP: no

Persistence and degradability

Product:

Biodegradability : Remarks: Inorganic substance. Causes no biological oxygen consumption.

Components:

Melamine:

Biodegradability : aerobic
Inoculum: activated sludge
Concentration: 100 mg DOC/l
Dissolved organic carbon (DOC)
Result: not rapidly degradable
Biodegradation: < 10 %
Exposure time: 28 d
Method: OECD Test Guideline 302B
GLP: No information available.

aerobic
Inoculum: activated sludge
Method: Other
GLP: No information available.
Remarks: The product is biodegradable after lengthy adaptation.

Physico-chemical removability : Remarks: Not readily eliminated from water.

Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Not applicable

Components:

Melamine:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 0.38 - 3.8
Exposure time: 42 d
Concentration: 0.2 - 2 mg/l
Method: Other
GLP: No information available.

Partition coefficient: n-octanol/water : log Pow: -1.22 (72 °F / 22 °C)
pH: 8
Method: Regulation (EC) No. 440/2008, Annex, A.8

GLP: no

Mobility in soil

Components:

Melamine:

Distribution among environmental compartments : Adsorption/Soil
Medium: water - soil
log Koc: 1.13 - 1.51
Method: estimated

Other adverse effects

Product:

Environmental fate and pathways : Remarks: not available

Additional ecological information : The ecological values have been gathered from a saturated aqueous solution.
May contribute to eutrophication in static waters, therefore should not be released into surface waters

Components:

Melamine:

Environmental fate and pathways : no data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

RCRA - Resource Conservation and Recovery Authorization Act : This product, if discarded as sold, is not a Federal RCRA hazardous waste.

Waste Code : NONE

Waste from residues : Small quantities may be treated in aerobic wastewater treatment systems. Larger quantities may be incinerated or landfilled after solidification in permitted systems.

Contaminated packaging : Properly emptied, non-contaminated packaging of non-hazardous products can be supplied to a system for the collection of sales packaging.

SECTION 14. TRANSPORT INFORMATION

DOT not restricted

IATA not restricted

IMDG not restricted

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Carcinogenicity
Reproductive toxicity

SARA 313 : 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.

Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307
This product does not contain any priority pollutants related to the U.S. Clean Water Act

The components of this product are reported in the following inventories:

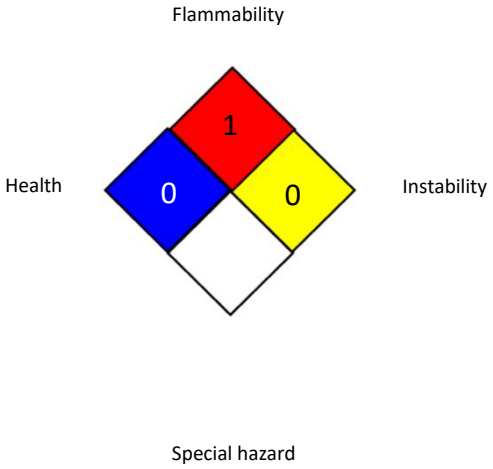
TSCA : On TSCA Inventory, All components are compliant with the TSCA Inventory Notification (Active) rule.

DSL : All components of this product are on the Canadian DSL

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



Full text of other abbreviations

US WEEL	:	USA. Workplace Environmental Exposure Levels (WEEL)
US WEEL / TWA	:	8-hr TWA

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-

Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Not on the Chemical Weapons Convention (CWC) Toxic Chemicals and Precursors List
None known.

Revision Date : 07/18/2025

This information corresponds to the present state of our knowledge and is intended as a general description of our products and their possible applications. Clariant makes no warranties, express or implied, as to the information's accuracy, adequacy, sufficiency or freedom from defect and assumes no liability in connection with any use of this information. Any user of this product is responsible for determining the suitability of Clariant's products for its particular application. NO EXPRESS OR IMPLIED WARRANTY IS MADE OF THE MERCHANTABILITY, SUITABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE OF ANY PRODUCT OR SERVICE. Nothing included in this information waives any of Clariant's General Terms and Conditions of Sale, which control unless it agrees otherwise in writing. Any existing intellectual/industrial property rights must be observed. Due to possible changes in our products and applicable national and international regulations and laws, the status of our products could change. Material Safety Data Sheets providing safety precautions, that should be observed when handling or storing Clariant products, are available upon request and are provided in compliance with applicable law. You should obtain and review the applicable Material Safety Data Sheet information before handling any of these products. For additional information, please contact Clariant.

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