

LuminATE

Version number: 1.0

Date of compilation: 2020-06-17

SECTION 1: Identification**1.1 Product identifier**

Trade name

LuminATE

Product code(s)

ASY4049 (1290313), ASY4043 (323700100), KIT4010, KIT4011

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

Relevant identified uses

Laboratory and analytical use

1.3 Details of the supplier of the safety data sheet

Hygiena USA
941 Avenida Acaso
Camarillo California 93012
United States

Telephone: +1 (805) 388-8007
Telefax: +1 (805) 388-5531
e-mail: info@hygiena.com

e-mail (competent person)

info@hygiena.com

1.4 Emergency telephone number

Emergency information service

1-888-494-4362

This number is only available during the following
office hours: Mon-Fri 08:00 AM - 05:00 PM

SECTION 2: Hazard(s) identification**2.1 Classification of the substance or mixture**

Classification acc. to GHS

Section	Hazard class	Category	Hazard class and category	Hazard statement
3.2	skin corrosion/irritation	3	Skin Irrit. 3	H316

For full text of abbreviations: see SECTION 16.

2.2 Label elements

Labeling

- Signal word warning

- Pictograms not required

- Hazard statements

H316 Causes mild skin irritation.

- Precautionary statements

P332+P313 If skin irritation occurs: Get medical advice/attention.

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2.3 Other hazards

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.








SECTION 3: Composition/information on ingredients

3.1 Substances

Not relevant (mixture)

3.2 Mixtures

Description of the mixture

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms
Bovine Serum Albumin	CAS No 9048-46-8	50 – < 75		
D-Luciferin	CAS No 2591-17-5	5 – < 10		
Tricine	CAS No 5704-04-1	5 – < 10	Acute Tox. 5 / H303	
Tris	CAS No 77-86-1	5 – < 10		
DL-Dithiothreitol	CAS No 3483-12-3	3 – < 5	Acute Tox. 4 / H302 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 STOT SE 3 / H335	
Magnesium Acetate Tetrahydrate	CAS No 16674-78-5	3 – < 5		
tetrasodium ethylene diamine tetracetate	CAS No 10378-23-1 64-02-8	0.1 – < 1	Acute Tox. 4 / H302 Acute Tox. 2 / H330 Eye Dam. 1 / H318 STOT RE 2 / H373 Aquatic Acute 3 / H402	  
EDTA K2	CAS No 25102-12-9	0.1 – < 1		
sodium azide	CAS No 26628-22-8	< 0.1	Acute Tox. 2 / H300 Acute Tox. 1 / H310 Acute Tox. 2 / H330 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 STOT SE 1 / H370 STOT RE 2 / H373 Aquatic Acute 1 / H400 Aquatic Chronic 4 / H413	  
Luciferase	CAS No 61970-00-1	< 0.1		

For full text of abbreviations: see SECTION 16.

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SECTION 4: First-aid measures

4.1 Description of first- aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician. Provide fresh air.

Following skin contact

Wash with plenty of soap and water.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water spray, BC-powder, Carbon dioxide (CO₂)

Unsuitable extinguishing media

Water jet

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products

Nitrogen oxides (NO_x), Carbon monoxide (CO), Carbon dioxide (CO₂)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Coordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.

For emergency responders

Wear breathing apparatus if exposed to vapors/dust/aerosols/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains

Advice on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: sawdust, kieselgur (diatomite), sand, universal binder

Appropriate containment techniques

Use of adsorbent materials.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

- Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Use only in well-ventilated areas.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

7.3 Specific end use(s)

See section 16 for a general overview.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)											
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m ³]	STEL [ppm]	STEL [mg/m ³]	Ceiling-C [ppm]	Ceiling-C [mg/m ³]	Notation	Source
CA	sodium azide	26628-22-8	OEL (AB)						0.29		OHS Code
CA	sodium azide	26628-22-8	OEL (BC)						0.29		"BC Regulation"
CA	sodium azide	26628-22-8	OEL (ON-MoL)						0.29		MoL
CA	sodium azide	26628-22-8	PEV/VEA					0.11	0.3		Regulation OHS
CA	sodium azide	26628-22-8	OEL (AB)			0.11	0.3	0.11		HN3	OHS Code
CA	sodium azide	26628-22-8	OEL (BC)					0.11		HN3	"BC Regulation"
CA	sodium azide	26628-22-8	OEL (ON-MoL)						0.11	HN3, vap	MoL

Notation

Ceiling-C

HN3

STEL

TWA

vap

ceiling value is a limit value above which exposure should not occur

calculated as HN3 (hydrazoic acid)

short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

as vapors

Relevant DNELs of components of the mixture

Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
tetrasodium ethylene diamine tetracetate	10378-23-1 64-02-8	DNEL	0.164 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
tetrasodium ethylene diamine tetracetate	10378-23-1 64-02-8	DNEL	46.7 µg/kg	human, dermal	worker (industry)	chronic - systemic effects
tetrasodium ethylene diamine tetracetate	10378-23-1 64-02-8	DNEL	1.5 mg/m ³	human, inhalatory	worker (industry)	chronic - local effects
tetrasodium ethylene diamine tetracetate	10378-23-1 64-02-8	DNEL	3 mg/m ³	human, inhalatory	worker (industry)	acute - local effects
sodium azide	26628-22-8	DNEL	0.164 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
sodium azide	26628-22-8	DNEL	46.7 µg/kg	human, dermal	worker (industry)	chronic - systemic effects

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Relevant PNECs of components of the mixture						
Name of substance	CAS No	Endpoint	Threshold level	Organism	Environmental compartment	Exposure time
tetrasodium ethylene diamine tetracetate	10378-23-1 64-02-8	PNEC	16.7 µg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
tetrasodium ethylene diamine tetracetate	10378-23-1 64-02-8	PNEC	0.72 µg/kg	aquatic organisms	marine sediment	short-term (single instance)
tetrasodium ethylene diamine tetracetate	10378-23-1 64-02-8	PNEC	2.2 mg/l	aquatic organisms	freshwater	short-term (single instance)
tetrasodium ethylene diamine tetracetate	10378-23-1 64-02-8	PNEC	0.22 mg/l	aquatic organisms	marine water	short-term (single instance)
tetrasodium ethylene diamine tetracetate	10378-23-1 64-02-8	PNEC	43 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
tetrasodium ethylene diamine tetracetate	10378-23-1 64-02-8	PNEC	0.72 mg/kg	terrestrial organisms	soil	short-term (single instance)
sodium azide	26628-22-8	PNEC	0.35 µg/l	aquatic organisms	freshwater	short-term (single instance)
sodium azide	26628-22-8	PNEC	30 µg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
sodium azide	26628-22-8	PNEC	16.7 µg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
sodium azide	26628-22-8	PNEC	0.72 µg/kg	aquatic organisms	marine sediment	short-term (single instance)

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Skin protection

- Hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. In the case of wanting to use the gloves again, clean them before taking off and air them well. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

- Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

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SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties****Appearance**

Physical state	liquid
Color	various
Odor	characteristic

Other safety parameters

pH (value)	not determined
Melting point/freezing point	not determined
Initial boiling point and boiling range	not determined
Flash point	not determined
Evaporation rate	not determined
Flammability (solid, gas)	not relevant, (fluid)
Explosive limits	not determined
Vapor pressure	<0.002 Pa at 20 °C
Density	not determined
Vapor density	this information is not available
Relative density	information on this property is not available
Solubility(ies)	not determined

Partition coefficient

- n-octanol/water (log KOW)	this information is not available
Auto-ignition temperature	not determined
Viscosity	not determined
Explosive properties	none
Oxidizing properties	none

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9.2 Other information

Solvent content	88.97 %
Solid content	11.03 %

SECTION 10: Stability and reactivity

10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials".

10.2 Chemical stability

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

10.5 Incompatible materials

Oxidizers

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification acc. to GHS

Acute toxicity

Shall not be classified as acutely toxic.

Acute toxicity estimate (ATE) of components of the mixture			
Name of substance	CAS No	Exposure route	ATE
Tricine	5704-04-1	oral	2,000 mg/kg
DL-Dithiothreitol	3483-12-3	oral	500 mg/kg
tetrasodium ethylene diamine tetracetate	10378-23-1 64-02-8	oral	1,913 mg/kg
tetrasodium ethylene diamine tetracetate	10378-23-1 64-02-8	inhalation: dust/mist	0.054 mg/l/4h
sodium azide	26628-22-8	oral	5 mg/kg

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Acute toxicity estimate (ATE) of components of the mixture			
Name of substance	CAS No	Exposure route	ATE
sodium azide	26628-22-8	dermal	5 mg/kg
sodium azide	26628-22-8	inhalation: dust/mist	0.054 mg/l/4h

Skin corrosion/irritation

Causes mild skin irritation.

Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

Respiratory or skin sensitization

Shall not be classified as a respiratory or skin sensitizer.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

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12.6 Other adverse effects

Endocrine disrupting potential

None of the ingredients are listed.

SECTION 13: Disposal considerations**13.1 Waste treatment methods**

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packages

Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: Transport information

- | | |
|--|---|
| 14.1 UN number | not subject to transport regulations |
| 14.2 UN proper shipping name | not assigned |
| 14.3 Transport hazard class(es) | not assigned |
| 14.4 Packing group | not assigned |
| 14.5 Environmental hazards | non-environmentally hazardous acc. to the dangerous goods regulations |
| 14.6 Special precautions for user | |
| There is no additional information. | |
| 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code | |
| The cargo is not intended to be carried in bulk. | |

Information for each of the UN Model Regulations**Transport information - National regulations - Additional information (UN RTDG)**

not assigned

International Maritime Dangerous Goods Code (IMDG)

Not subject to IMDG.

International Civil Aviation Organization (ICAO-IATA/DGR)

Not subject to ICAO-IATA.

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SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

National regulations (United States)

Superfund Amendment and Reauthorization Act (SARA TITLE III)

- The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)

The List of Extremely Hazardous Substances and Their Threshold Planning Quantities

Name of substance	CAS No	Notes	Reportable quantity (pounds)	Threshold planning quantity (pounds)
sodium azide	26628-22-8	a	1,000	500

Legend

a This material is a reactive solid. The TPQ does not default to 10,000 pounds for non-powder, non-molten, non-solution form.

- Specific Toxic Chemical Listings (EPCRA Section 313)

Toxics Release Inventory: Specific Toxic Chemical Listings

Name of substance	CAS No	Remarks	Effective date
sodium azide	26628-22-8		1994-12-31

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

- List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)

Name of substance	CAS No	Remarks	Statutory code	Final RQ pounds (Kg)
sodium azide	26628-22-8		4	1000 (454)

Legend

4 "4" indicates that the source is section 3001 of the Resource Conservation and Recovery Act (RCRA)

Clean Air Act

none of the ingredients are listed

Right to Know Hazardous Substance List

- Hazardous Substance List (NJ-RTK)

Name of substance	CAS No	Remarks	Classifications
sodium azide	26628-22-8		R3

Legend

R3 Reactive - Third Degree

California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

none of the ingredients are listed

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VOC content

Regulated Volatile Organic Compounds (VOC-EPA): Regulated Volatile Organic Compounds (VOC-Cal ARB):

Industry or sector specific available guidance(s)

NPCA-HMIS® III

Hazardous Materials Identification System. American Coatings Association.

Category	Rating	Description
Chronic	/	none
Health	0	no significant risk to health
Flammability	1	material that must be preheated before ignition can occur
Physical hazard	0	material that is normally stable, even under fire conditions, and will not react with water, polymerize, decompose, condense, or self-react. Non-explosive
Personal protection	-	

NFPA® 704

National Fire Protection Association: Standard System for the Identification of the Hazards of Materials for Emergency Response (United States).

Category	Degree of hazard	Description
Flammability	1	material that must be preheated before ignition can occur
Health	0	material that, under emergency conditions, would offer no hazard beyond that of ordinary combustible material
Instability	0	material that is normally stable, even under fire conditions
Special hazard		

15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information, including date of preparation or last revision

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
"BC Regulation"	OHS Regulation: Section 5.48 (British Columbia)
Acute Tox.	Acute toxicity
Aquatic Acute	Hazardous to the aquatic environment - acute hazard
Aquatic Chronic	Hazardous to the aquatic environment - chronic hazard
ATE	Acute Toxicity Estimate
Cal ARB	California Air Resources Board
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)

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Abbr.	Descriptions of used abbreviations
Ceiling-C	Ceiling value
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EPA	Environmental Protection Agency. An agency of the federal government of the United States charged with protecting human health and the environment
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
MoL	Ministry of Labor: Current Occupational Exposure Limits for Ontario Workplaces Required under Regulation 833
NPCA-HMIS® III	National Paint and Coatings Association: Hazardous Materials Identification System - HMIS® III, Third Edition
OHS Code	Occupational Health and Safety Code: Occupational exposure limits for chemical substances (Alberta)
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
Regulation OHS	Regulation respecting occupational health and safety: Permissible exposure values for airborne contaminants (Quebec)
RTECS	Registry of Toxic Effects of Chemical Substances (database of NIOSH with toxicological information)
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
STEL	Short-term exposure limit
STOT RE	Specific target organ toxicity - repeated exposure
STOT SE	Specific target organ toxicity - single exposure
TWA	Time-weighted average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

Globally Harmonized System of Classification and Labelling of Chemicals ("Purple book").

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UN Recommendations on the Transport of Dangerous Goods. International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties: The classification is based on tested mixture.

Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H300	Fatal if swallowed.
H302	Harmful if swallowed.
H303	May be harmful if swallowed.
H310	Fatal in contact with skin.
H315	Causes skin irritation.
H316	Causes mild skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
H370	Causes damage to organs.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H402	Harmful to aquatic life.
H413	May cause long lasting harmful effects to aquatic life.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.