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1. Identification

1.2.

1.3.

1.1. **Product identifier**

Trade name	TrypAMINO® L-Tryptophan, Feed Grade 98%
CAS-No.	73-22-3
Recommended use of the	he chemical and restrictions on use
Relevant applications identified	Feed additive
Details of the supplier of	f the safety data sheet
Company	Evonik Corporation USA 299 Jefferson Road Parsippany,NJ 07054-0677 USA
Telephone	973-929-8000
Telefax	973-929-8040
Email address	Product-Regulatory-Services@Evonik.com

1.4. 24 HOUR EMERGENCY TELEPHONE NUMBERS:

	CHEMTREC - US & CANADA:	800-424-9300		
	CHEMTREC MEXICO:	01-800-681-9531		
	CHEMTREC INTERNATIONAL:	+1 703-527-3887 (collect calls accepted)		
- 6	Product Regulatory Services	: 973-929-8060		
2.	Hazards identification			
2.1.	Classification of the substance or mixture Classification according to Regulation 29CFR 1910.1200			
		t a hazardous substance or mixture.		
2.2.	Label elements			
	Statutory basis Remarks	Classification according to Regulation 29CFR 1910.1200 Not a hazardous substance or mixture.		
2.3.	Other hazards			
	May cause eye and skin	irritation.		
	Inhalation	No hazard expected in normal use.		
	Skin	Possibly irritating.		
	Eyes	Possibly irritating.		
	Ingestion	No hazard expected in normal use.		
	Dust can form an explosi	ve mixture in air		

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3. Composition/information on ingredients

L-Tryptophan

>= 98%

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CAS-No. 73-22-3 Other information

This material is classified as not hazardous under OSHA regulations. This product is intended for FDA regulated uses only.

4. First aid measures

4.1. Description of first aid measures

Inhalation

In case product dust is released: Possible discomfort: cough, sneezing Move victims into fresh air. If symptoms persist, seek medical advice (show this MSDS where possible). **Skin contact** Wash off with plenty of water. Consult a doctor in the event of permanent skin irritation. **Eye contact** Possible discomfort is due to foreign substance effect. Rinse thoroughly with plenty of water keeping eyelid open. In case of persistent discomfort: Consult an ophthalmologist. **Ingestion** Have the mouth rinsed with water. After absorbing large amounts of substance If symptoms persist, seek medical advice (show this MSDS where possible).

4.2. Most important symptoms and effects, both acute and delayed

4.3. Indication of any immediate medical attention and special treatment needed After absorbing large amounts of substance: Acceleration of gastrointestinal passage

5. Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media:	Water, mist, Foam
Unsuitable extinguishing media:	quenching powder, Carbon dioxide (CO2)

5.2. Special hazards arising from the substance or mixture

Formation of flammable or explosive dust/air mixtures possible. In the case of fire, the following hazardous smoke fumes may be produced: carbon monoxide, carbon dioxide, nitric oxides, hydrocyanic acid. flammable smouldering gases In the event of fire and/or explosion do not breathe fumes.

5.3. Advice for firefighters

Contaminated fire-extinguishing water must be disposed of in accordance with the regulations issued by the appropriate local authorities.

Fire residues should be disposed of in accordance with the regulations.

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In the event of fire, wear self-contained breathing apparatus.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures Wear personal protective equipment. Keep unauthorized persons away.

6.2. Environmental precautions

Do not allow the product into the following compartments:, groundwater, surface water

6.3. Methods and material for containment and cleaning up

Absorb mechanically avoiding production of dust. Keep away from sources of ignition - No smoking. To absorb spilled substance an approved industrial vacuum cleaner is recommended. If necessary, the spilled substance should be moistened.

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7. Handling and storage

7.1. Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Advice on protection against fire and explosion

Take precautionary measures against static charges, keep away from sources of ignition. Avoid dust formation.

Storage

Store in a cool and shaded area.

Keep containers dry and tightly closed to avoid moisture absorption and contamination.

Advice on common storage

Incompatible with strong acids and strong oxidizing agents.

German storage class 11 - Combustible Solids

Dust explosion class

St1

Method:

Maximum rate of pressure rise:

VDI Guideline 2263 sheet 1 122 bar/s

Standardized max. rate of pressure increase, KSt.

122bar·m/s

8. Exposure controls/personal protection

8.1. Control parameters

 exposure limit 	it for dust	
CAS-No. Control parameters type of exposure	3 mg/m3 Respirable fraction, Suitable measuring processes are: NIOSH method 0500 NIOSH method 0600	Time Weighted Average (TWA):(ACGIH)
Control parameters type of exposure	10 mg/m3 Inhalable particulate.	Time Weighted Average (TWA):(ACGIH)
Control parameters	15 mg/m3	Time Weighted Average (TWA) Permissible Exposure Limit (PEL):(OSHA Z1)

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type of exposure	Total dust.	
Control parameters	5 mg/m3	Time Weighted Average (TWA) Permissible Exposure Limit (PEL):(OSHA Z1)
type of exposure	Respirable fraction. Suitable measuring processes are: NIOSH method 0500 NIOSH method 0600	

DNEL/DMEL values Remarks

No substance-related safety assessment is necessary / has been conducted for this product.

PNEC values

Remarks

No substance-related safety assessment is necessary / has been conducted for this product.

8.2. Exposure controls

Engineering measures

Use process enclosures, local exhaust ventilation or other engineering controls to control airborne exposure.

Take measures to prevent the build up of electrostatic charge.

Personal protective equipment

Respiratory protection

A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH's "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.

Hand protection

 Glove material
 Natural rubber (NR), for example, Cama Clean 708, Kächele-Cama Latex GmbH (KCL),

 Germany
 Material thickness

 Material thickness
 0.5 mm

 Break through time
 8 h

 Method
 DIN EN 374

 Glove material
 Nitrile, for example, Dermatril 740, Kächele-Cama Latex GmbH (KCL), Germany

 Material thickness
 0.11 mm

 Break through time
 8 h

 Method
 DIN EN 374

 Break through time
 8 h

 Break through time
 8 h

 DIN EN 374
 0.11 mm

 Method
 DIN EN 374

The above mentioned hand protection is based on knowledge of the chemistry and anticipated uses of this product but it may not be appropriate for all workplaces. A hazard assessment should be conducted prior to use to ensure suitability of gloves for specific work environments and processes prior to use.

Eye protection

Safety glasses

Hygiene measures

Wash face and/or hands before break and end of work.

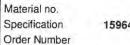
Cleanse and apply cream to skin after work.

Protective measures

Handle in accordance with good industrial hygiene and safety practice. If there is the possibility of skin/eye contact, the indicated hand/eye/body protection should be used.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties



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physical state Colour Odour	solid white until characteris		
Odour Threshold	not determ	ined	
рН	5.5 - 7.0	(25 g/l)	(25 °C)
Melting point/range	279 - 292 ° Method: decomposit	DIN 51004	
Boiling point/range	not applical	ble	
Flash point	not applical solid	ole	
Evaporation rate	No data ava	ailable	
Flammability (solid, gas)	not highly fl Method:	ammable UN method	I N.1
Lower explosion limit	dust: Method:	30 g/m ³ VDI 2263	(34 μm)
Upper explosion limit	not to be de	termined	
Vapour pressure	< 0.000000 Method: literature	1 hPa calculated	(25 °C)
Vapour density	No data ava	ilable	
Relative vapour density	no data ava	ilable	
Relative density	1.39 (22 Method:		Guideline 109
Water solubility	11.4 g/l Related to su		pure substance
Partition coefficient: n- octanol/water	log Pow: Related to su	-1.11 bstance:	pure substance
Autoignition temperature		led up	ne 2263 sheet 1

Mater Speci	ETY DATA SHEET AMINO® L-Tryptophar ial no. fication 159641 Number	n, Feed Grade 98% Version Revision date Print Date Page	2.0 / US 04/22/2015 04/22/2015 6 / 14	
	Thermal decomposition	290 - 292 °C TG (thermal gravimetric a (literature value)	nalysis)	
	Viscosity, dynamic	not applicable solid		
9.2.	Other information Explosiveness	The product is susceptible	e to dust explosion.	
	Minimum ignition energy		combustability e 2263 sheet 1 34 μm	
	maximum absolute explosive pressure	8.5 bar Method: VDI 2263 grain size < 63µm		
	Metal corrosion	no data available		
	Burning number	BZ 2 - briefly ignites and r Method: Combustibilit	apidly extinguishes. y test in accordance v	vith VDI 2263:
10.	Stability and reactivity			
10.1.	Reactivity No further information av	ailable		
10.2.	Chemical stability Stable under recommend	led storage conditions.		
10.3.	Possibility of hazardous Possibility of hazardous reactions	s reactions Dust can form an explosiv	e mixture in air.	
10.4.	Conditions to avoid See chapter 7.2. Conditions for safe s	torage, including any incon	npatibilities	
	Incompatible materials	ailablo		
10.5.	No further information av	allable		

Acute oral toxicity NOAEL Rat: 2000 mg/kg

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	Method:	OECD T	G 423	
	LD50 Rat: > Method:	5000 mg/kg OECD T	g G 423	
Acute inhalation toxicity	NOAEL Rat: Method:	5.17 mg/l / OECD T	4 h est Guideline 403	
Acute dermal toxicity	Assessment:	no data a	available	
Skin irritation	Rabbit: 500 n No skin irritat			
	Method	OECD T	est Guideline 404	
Eye irritation	Rabbit: 100 n No eye irritati	on		
- 11 A A	Method:		est Guideline 405	
Sensitization	Local Lymphr Method:	ode Assay OECD T	Mouse: Does not cau G 429	se skin sensitisation.
Repeated dose toxicity	Oral Rat(male Testing period: Subsequent obser period:	90	d day	
	NOAEL: Method:	> 3 OE	8764 mg/kg CD TG 408	
Assessment of STOT single exposure	Assessment:	no data a	vailable	
Assessment of STOT repeat exposure	Assessment	no data a	vailable	
Risk of aspiration toxicity	no data availa	ble		
Gentoxicity in vitro	Cytogenetic te negative Metabolic activation		cells (Chinese hams	ter) 312,5 - 5000 μg/ml
	Method: HGPRT-Test	OECD TG	476	
	negative		cells (Chinese hams	ter) 187,5 - 3000 μg/ml
	Metabolic activation Method: HGPRT-Test	OECD TG	476	
	negative		imurium 0,316 - 5000) µg/plate
	Metabolic activation Method:	with or wit		
	negative			phocytes 625 - 5000 µg/m
	Metabolic activation Method:	with or with OECD TG		

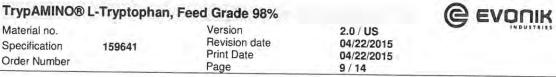


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Carcinogenicity		5 days/weeks
carcinogenicity assessment	Animal testing did no	t show any carcinogenic effects.
	Contains no carcinog OSHA.	enic substances as defined by NTP, IARC and/or
Toxicity to reproduction	no evidence of reproc 90 days study OECD TG 408	ductiontoxic properties
Teratogenicity	Oral Rat / 20 days Number of exposures: Test period: NOAEL (No Observed Adverse Effect Level) teratogenesis: NOAEL maternal (No Observed Adverse Effect Level):	continuous 20 days 7150 mg/kg 2850 mg/kg
Toxicological informatio	Method: literature	OECD TG 414
	Method: literature on on components LD50 Rat(female): > Method: OEC	2000 mg/kg D TG 423 substance or mixture has no acute oral toxicity
L-Tryptophan	Method: literature Don on components LD50 Rat(female): > Method: OEC Assessment: The s No deaths observed. (limit test) LD50 Mouse: > 5000 No deaths occurred. LC50 Rat(male and f Method: OEC	2000 mg/kg D TG 423 substance or mixture has no acute oral toxicity 0 mg/kg female): > 5.17 mg/l / 4 h / dust/mist D Test Guideline 403 substance or mixture has no acute inhalation toxicit
L-Tryptophan Acute oral toxicity	Method: literature bn on components LD50 Rat(female): > Method: OEC Assessment: The s No deaths observed. (limit test) LD50 Mouse: > 5000 No deaths occurred. LC50 Rat(male and f Method: OEC Assessment: The s No deaths observed.	2000 mg/kg D TG 423 substance or mixture has no acute oral toxicity 0 mg/kg female): > 5.17 mg/l / 4 h / dust/mist D Test Guideline 403 substance or mixture has no acute inhalation toxicit
L-Tryptophan Acute oral toxicity Acute inhalation toxicity	Method: literature bn on components LD50 Rat(female): > Method: OEC Assessment: The s No deaths observed. (limit test) LD50 Mouse: > 5000 No deaths occurred. LC50 Rat(male and f Method: OEC Assessment: The s No deaths observed. Assessment: no da Rabbit: 500 mg No skin irritation	2000 mg/kg D TG 423 substance or mixture has no acute oral toxicity 0 mg/kg female): > 5.17 mg/l / 4 h / dust/mist D Test Guideline 403 substance or mixture has no acute inhalation toxicit

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Sensitization	Local Lymphnode A animals.	ssay Mouse: Did not cause sensitisation on laborator
		CD TG 429
Repeated dose toxicity	Oral Rat(male and fe	emale) / 90-day
	Number of exposures:	continuous
	NOAEL:	3764 mg/kg
	Method	OECD TG 408
	Oral Rat(male and fe	emale) / 28-dav
	Number of exposures:	continuous
	NOAEL:	1188 - 1271 mg/kg
	Method:	OECD Test Guideline 407
Gentoxicity in vitro	chromosomal aberra	tion Human lymphocytes
	negative	3 1
	Metabolic activation: with	or without
	Method: OEC	D TG 473
Carcinogenicity	Oral Rat(male and fe	emale)
	Number of exposures:	5 days/weeks
	Subsequent observation per	
	Method: OEC	D Test Guideline 451
carcinogenicity assessment	Animal testing did no	t show any carcinogenic effects.
Teratogenicity	Oral Rat / 20 days	
	Number of exposures:	continuous
	Test period:	20 days
	NOAEL (No Observed	ca. 7150 mg/kg
	Adverse Effect Level)	3.3
	teratogenesis:	
	NOAEL maternal (No Observed Adverse Effect	ca. 2850 mg/kg
	Level):	
	Method:	OECD TG 414
	literature	000010414
	incialure	

12. Ecological information

 Toxicity Toxicity in aquatic invertebrates	NOEC Daphnia magna: Method: OECD TG 202	100 mg/l / 48 h
 	100.00	

12.2. Persistence and degradability Biod

odegradability	Result:	rapidly biodegradable	
	Method:	OECD TG 301 B	

12.3. Bioaccumulative potential

Bioaccumulation No data available

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12.4. Mobility in soil Mobility

No data available

12.5. Other adverse effects

Further Information No further information available

13. Disposal considerations

13.1. Waste treatment methods

Product

Waste must be disposed of in accordance with federal, provincial and local regulations.

Uncleaned packaging

Packaging material should be recycled or disposed of in accordance with federal, state and local regulations.

14. Transport information

Not dangerous according to transport regulations.

14.1. UN number:

14.2.	UN proper shipping name:	
14.3.	Transport hazard class(es):	
14.4.	Packing group:	
14.5.	Environmental hazards (Marine pollutant):	
14.6.	Special precautions for user:	Yes
	Not dangerous according to trans	port regulations.

15. Regulatory information

US Federal Regulations

OSHA

If listed below, chemical specific standards apply to the product or components:

None listed

Clean Air Act Section (112)

If listed below, components present at or above the de minimus level are hazardous air pollutants:

None listed

SAFETY DATA SHEET

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CERCLA Reportable Quantities

If listed below, a reportable quantity (RQ) applies to the product based on the percent of the named component:

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None listed

SARA Title III Section 311/312 Hazard Categories

The product meets the criteria only for the listed hazard classes:

No SARA Hazards

SARA Title III Section 313 Reportable Substances

If listed below, components are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

None listed

Toxic Substances Control Act (TSCA)

If listed below, non-proprietary substances are subject to export notification under Section 12 (b) of TSCA:

None listed

State Regulations

California Proposition 65

A warning under the California Drinking Water Act is required only if listed below:

None listed

International Chemical Inventory Status

Unless otherwise noted, this product is in compliance with the inventory listing of the countries shown below. For information on listing for countries not shown, contact the Product Regulatory Services Department.

Europe (EINECS/ELINCS)	listed/registered
USA (TSCA)	listed/registered
Canada (DSL)	listed/registered
Australia (AICS)	listed/registered
Japan (MITI)	listed/registered
Korea (TCCL)	listed/registered
Philippines (PICCS)	listed/registered
China	listed/registered
Switzerland	not listed/registered

An employer using HMIS/NFPA labeling must through training ensure that its employees are fully aware of the hazards of the chemicals used.

HMIS Ratings

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Health : Flammability : Physical Hazard :

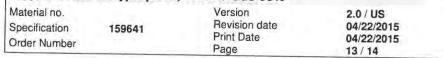
16. Other information

Further information

Revision date

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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voc WHMIS WHO volatile organic compounds Workplace Hazardous Materials Information System World Health Organization

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