

## **RECONSTITUTION BUFFER, PH NBS AMINO ACIDS AND ACYLCARNITINES FROM DRIED BLOOD SPOTS SAFETY DATA SHEET**

according to Regulation (EC) No. 1907/2006


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### **1. Identification of the substance/mixture and of the company/undertaking**

<b>Product name</b>	RECONSTITUTION BUFFER, PH NBS AMINO ACIDS AND ACYLCARNITINES FROM DRIED BLOOD SPOTS
<i>Order. No(s).</i>	-
<b>Identified uses</b>	Product for diagnostic use
<b>company/undertaking Identification</b>	Paya Hamsan Technologies, Chamran Building, Azad University, Daneshgah Blvd., Arak, Iran Tel-Fax: +98 86 33670011 Email: info@phtech.ir

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### **2. Hazards identification**

<b>Classification of the substance or mixture</b>	according to Regulation (EC) No 1272/2008 (CLP) Flammable liquids (Category 2), H225 acute Toxicity (Category 4), H302 Eye Irritation (Category 2), H319
<b>Label Elements</b>	Labelling according to Regulation (EC) No 1272/2008 (CLP)
<i>Pictograms</i>	
<i>Signal word</i>	DANGER!
<i>Hazard statements</i>	H225 Highly flammable liquid and vapor. H302 Harmful if swallowed. H319 Causes serious eye irritation.
<i>Precautionary statements</i>	P210: Keep away from heat. No smoking. P233: Keep container tightly closed. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical advice/attention. P370+P378: In case of fire: Use sand, carbon dioxide or powder extinguisher to extinguish. P403+P235: Store in a well-ventilated place. Keep cool. P501: Dispose of contents/container to industrial combustion plant.


*Hazardous ingredients for labelling*      acetonitrile

**Other hazards**      No data available.

### 3. Composition/information on ingredients

**Substances synonyms**      Acetonitrile

*Formula*      C<sub>2</sub>H<sub>3</sub>N  
*CAS No.*      75-05-8  
*EC No.*      200-835-2

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms
acetonitrile	CAS No 75-05-8 EC No 200-835-2	25 – < 50	Flam. Liq. 2 / H225 Acute Tox. 4 / H302 Acute Tox. 4 / H312 Acute Tox. 4 / H332 Eye Irrit. 2 / H319	

Name of substance	Specific Conc. Limits	M-Factors	ATE	Exposure route
acetonitrile	-	-	469 mg/kg 1,100 mg/kg 11 mg/l/4h	oral dermal inhalation: vapor

### 4. First aid measures

#### Description of first aid measures

*General*      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.

*Inhalation*      If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Provide fresh air.

*Skin contact*      Wash with plenty of soap and water.

*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.

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

**Most important symptoms and effects, both acute and delayed**      Symptoms and effects are not known to date.



**sections**

protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

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## 7. Handling and storage

### Handling

#### *Recommendations*

- Measures to prevent fire as well as aerosol and dust generation: Use local and general ventilation. Avoidance of ignition sources. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharge. Use only in well-ventilated areas. Due to danger of explosion, prevent leakage of vapors into cellars, flues and ditches. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools.
- Specific notes/details: Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures. Vapors are heavier than air, spread along floors and form explosive mixtures with air. Vapors may form explosive mixtures with air.

#### *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 feeding stuffs.

### Storage

#### *Managing of associated risks*

- Explosive atmospheres: Keep container tightly closed and in a well-ventilated place. Use local and general ventilation. Keep cool. Protect from sunlight.
- Flammability hazards: Keep away from sources of ignition - No smoking. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Protect from sunlight.

#### *Control of effects*

- Protect from sunlight. Protect from moisture. Protect against external exposure, such as Frost
- Ventilation requirements: Use local and general ventilation. Ground/bond container and receiving equipment.
  - Packaging compatibilities: Only packaging which are approved (e.g. acc. to ADR) may be used.

### Specific end use(s)

See section 16 for a general overview.

## 8. Exposure controls/personal protection

### Control parameters

Occupational exposure limit values (Workplace Exposure Limits)											
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/ m <sup>3</sup> ]	STEL [ppm]	STEL [mg/ m <sup>3</sup> ]	Ceiling-C [ppm]	Ceiling-C [mg/ m <sup>3</sup> ]	Notation	Source
EU	acetonitrile	75-05-8	IOEL V	40	70						2006/15/EC
GB	acetonitrile	75-05-8	WEL	40	68	60	102				EH40/2005

Relevant DNELs of components of the mixture						
Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
acetonitrile	75-05-8	DNEL	68 mg/m <sup>3</sup>	human, inhalat-ory	worker (industry)	acute - local effects
acetonitrile	75-05-8	DNEL	68 mg/m <sup>3</sup>	human, inhalat-ory	worker (industry)	acute - systemic effects
acetonitrile	75-05-8	DNEL	68 mg/m <sup>3</sup>	human, inhalat-ory	worker (industry)	chronic - local effects
acetonitrile	75-05-8	DNEL	32.2 mg/kg	human, dermal	worker (industry)	chronic - systemic effects
acetonitrile	75-05-8	DNEL	68 mg/m <sup>3</sup>	human, inhalat-ory	worker (industry)	chronic - systemic effects

Relevant PNECs of components of the mixture						
Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
acetonitrile	75-05-8	PNEC	32 mg/l	microorganisms	sewage treatment plant (STP)	short-term (single instance)
acetonitrile	75-05-8	PNEC	7.53 mg/kg	benthic organ-isms	sediments	short-term (single instance)
acetonitrile	75-05-8	PNEC	10 mg/l	aquatic organ-isms	freshwater	short-term (single instance)
acetonitrile	75-05-8	PNEC	1 mg/l	aquatic organ-isms	marine water	short-term (single instance)
acetonitrile	75-05-8	PNEC	32 mg/l	aquatic organ-isms	sewage treatment plant (STP)	short-term (single instance)
acetonitrile	75-05-8	PNEC	2.41 mg/kg	terrestrial organ-isms	soil	short-term (single instance)
acetonitrile	75-05-8	PNEC	7.53 mg/kg	aquatic organ-isms	freshwater sedi-ment	short-term (single instance)
acetonitrile	75-05-8	PNEC	10 mg/l	aquatic organ-isms	water	intermittent re-lease

### 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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## 9. Physical and chemical properties

<b>Physical state</b>	liquid
<b>Color</b>	colorless
<b>Odor</b>	information on this property is not available
<b>Melting/freezing point</b>	not determined
<b>Boiling point, boiling range</b>	81.6 °C at 1,013 hPa (calculated value, referring to a component of the mixture)
<b>Flammability</b>	flammable liquid in accordance with GHS criteria
<b>Lower, upper explosion limit</b>	3 vol% - 17 vol%
<b>Flash point</b>	6 °C (calculated value, referring to a component of the mixture)
<b>Auto-ignition temperature</b>	524 °C
<b>Decomposition temperature</b>	not relevant
<b>pH (value)</b>	3 (13.8 °C)
<b>Kinematic viscosity</b>	not determined
<b>Water solubility</b>	miscible in any proportion
<b>Partition coefficient n-octanol/water (log value)</b>	this information is not available
<b>Vapor pressure</b>	118.4 hPa at 25 °C (calculated value, referring to a component of the mixture)

<b>Density</b>	0.8921 g/ml (calculated value)
<b>Particle characteristics</b>	no data available
<b>Information with regard to physical hazard classes</b>	there is no additional information
<b>Miscibility</b>	Completely miscible with water.
<b>Solvent content</b>	100 %
<b>Solid content</b>	0 %
<b>Temperature class (EU, acc. to ATEX)</b>	T1 (maximum permissible surface temperature on the equipment: 450°C)

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## 10. Stability and reactivity

<b>Reactivity</b>	Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials". The mixture contains re- active substance(s). Risk of ignition. If heated: Risk of ignition
<b>Chemical stability</b>	See below "Conditions to avoid".
<b>Possibility of hazardous reactions</b>	No known hazardous reactions.
<b>Conditions to avoid</b>	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  <i>Hints to prevent fire or explosion</i> Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Take precautionary measures against static discharge.
<b>Incompatible materials</b>	Oxidizers.
<b>Hazardous decomposition products</b>	Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

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## 11. Toxicological information

<b>Information on hazard classes</b>	Test data are not available for the complete mixture. <i>Classification procedure</i> The method for classification of the mixture is based on ingredients of the mixture (additivity formula).
<i>Classification according to GHS (1272/2008/EC, CLP)</i>	<i>Acute toxicity:</i> Harmful if swallowed. GHS of the United Nations, annex 4: May be harmful in contact with skin or if inhaled. <i>Acute toxicity estimate (ATE):</i> Oral 1,065 mg/kg



Acute toxicity estimate (ATE) of components of the mixture			
Name of substance	CAS No	Exposure route	ATE
acetonitrile	75-05-8	oral	469 mg/kg
acetonitrile	75-05-8	dermal	1,100 mg/kg
acetonitrile	75-05-8	inhalation: vapour	11 mg/l/4h

<i>Skin corrosion/irritation</i>	Shall not be classified as corrosive/irritant to skin.
<i>Serious eye damage/eye irritation</i>	Causes serious eye irritation.
<i>Respiratory or skin sensitization</i>	Shall not be classified as a respiratory or skin sensitizer.
<i>Germ cell mutagenicity</i>	Shall not be classified as germ cell mutagenic.
<i>Carcinogenicity</i>	Shall not be classified as carcinogenic.
<i>Reproductive toxicity</i>	Shall not be classified as a reproductive toxicant.
<i>Specific target organ toxicity (single exposure)</i>	Shall not be classified as a specific target organ toxicant (single exposure).
<i>Specific target organ toxicity (repeated exposure)</i>	Shall not be classified as a specific target organ toxicant (repeated exposure).
<i>Aspiration hazard</i>	Shall not be classified as presenting an aspiration hazard.
<b>Information on other hazards</b>	There is no additional information.

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## 12. Ecological information

<b>Toxicity</b>	Shall not be classified as hazardous to the aquatic environment.
<b>Persistence and degradability</b>	Data are not available.
<b>Bio accumulative potential</b>	Data are not available.
<b>Mobility in soil</b>	No data available.
<b>Results of PBT and vPvB assessment</b>	No data available.
<b>Endocrine disrupting properties</b>	No data available.
<b>Other adverse effects</b>	No data available.






### 13. Disposal considerations

<b>Waste treatment methods</b>	<p><i>Waste treatment-relevant information</i> Solvent reclamation/regeneration.</p> <p><i>Sewage disposal-relevant information</i> Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.</p> <p><i>Waste treatment of containers/packaging</i> It is a dangerous waste; only packaging which are approved (e.g. acc. to ADR) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.</p>
<i>Relevant provisions relating to waste</i>	List of wastes: 16 05 06*: Laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals
<i>Remarks</i>	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.

### 14. Transport information

<b>UN number</b>	ADR/RID/ADN UN 1648 IMDG-Code UN 1648 ICAO-TI UN 1648
<b>UN proper shipping name</b>	ADR/RID/AND ACETONITRILE IMDG-Code ACETONITRILE ICAO-TI Acetonitrile
<b>Transport hazard class(s)</b>	ADR/RID/ADN 3 IMDG-Code 3 ICAO-TI 3
<b>Packaging group</b>	ADR/RID/AND II IMDG-Code II ICAO-TI II
<b>Environmental hazards</b>	none non-environmentally hazardous acc. to the dangerous goods regulations
<b>Special precautions for users</b>	Provisions for dangerous goods (ADR) should be complied within the premises.
<b>Maritime transport in bulk according to IMO instruments</b>	The cargo is not intended to be carried in bulk.

Acute toxicity estimate (ATE) of components of the mixture - Additional information	
Particulars in the transport document	UN1648, ACETONITRILE, 3, II, (D/E)
Classification code	F1
Danger label(s)	 3
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
Transport category (TC)	2
Tunnel restriction code (TRC)	D/E
Hazard identification No	33
Emergency Action Code	2YE
International Maritime Dangerous Goods Code (IMDG) - Additional information	
Particulars in the shipper's declaration	UN1648, ACETONITRILE, 3, II, 6°C c.c.
Marine pollutant	-
Danger label(s)	 3
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
EmS	F-E, S-D
Stowage category	<b>B</b>
International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information	
Particulars in the shipper's declaration	UN1648, Acetonitrile, 3, II
Danger label(s)	 3
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
ERG Code	3 L

## 15. Regulatory information

**Safety, health and environmental regulations/legislation**      *Deco-Paint Directive (2004/42/EC)*  
 VOC content: 44.09 %  
*Directive on industrial emissions (VOCs, 2010/75/EU)*  
 VOC content: 44.09 %

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

## 16. Other information

Abbreviations and acronyms	
Abbr.	Descriptions of used abbreviations
2006/15/EC	Commission Directive establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC
Acute Tox.	Acute toxicity
ADN	European Agreement concerning the International Carriage of Dangerous Goods by In- land Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ADR/RID/ADN	European Agreements concerning the International Carriage of Dangerous Goods by Road/Rail/Inland Waterways (ADR/RID/ADN)
ATE	Acute Toxicity Estimate

CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
Ceiling-C	Ceiling value
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EH40/2005	EH40/2005 Workplace exposure limits ( <a href="http://www.nationalarchives.gov.uk/doc/open-government-licence/">http://www.nationalarchives.gov.uk/doc/open-government-licence/</a> )
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
ERG Code	Emergency Response Guidance - Code
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
Flam. Liq.	Flammable liquid
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
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	Indicative occupational exposure limit value
NLP	No-Longer Polymer
PBT	Persistent, Bio accumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
REACH	Registration, Evaluation, Authorization and Restriction of Chemicals
RID	Regulations concerning the international carriage of Dangerous goods by Rail)
STEL	Short-term exposure limit
TWA	Time-weighted average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bio accumulative
WEL	Workplace exposure limit

Abbreviations and acronyms	
Code	Text
H225	Highly flammable liquid and vapor.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.

### Disclaimer

The information in this document is based on the best of our knowledge and shall be used only as a guide. The information given is designed for safe use, handling, storage, transportation and disposal. It does not represent any guarantee of the quality of the product.