05/03/2018	Kit Components	
Product code	Description	
39231	SERVA ICPL TM Triplex Kit	
Components:		
ICPL.a	ICPL_0 Reagent	
ICPL.b	ICPL_6 Reagent	
ICPL.c	Stop Solution 1	
ICPL.d	Reduction Solution	
ICPL.e	Alkylation Reagent	
ICPL.f	Stop solution 2	
ICPL.g	Lysis Buffer	
ICPL.h	Solution Buffer	
ICPL.i	Protein-Mix for ICPL_0	
ICPL.j	Protein-Mix for ICPL_6	
ICPL.k	Protein-Mix for ICPL_4	
ICPL.1	ICPL_4 Reagent	

Printing date 05/03/2018

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Product identifier	
Trade name: ICPL_0 Reagent	
Article number: ICPL.a Application of the substance / the mixture Laboratory ch	nemicals
Details of the supplier of the safety data sheet Manufacturer/Supplier: SERVA Electrophoresis GmbH Carl-Benz-Str. 7 D-69115 Heidelberg Tel.: +49 6221 13840-0 FAX: +49 6221 13840-10 msds.info@serva.de	Gmbh
Information department: Product Safety department Tel. Emergency telephone number: Medical Emergency Information in case of poisoning: Poison Information Center Mainz - Phone: +49 (0) 6131 (advisory service in German or English language)	S
Hazard(s) identification	
GHS label elements VoidHazard pictograms VoidSignal word VoidHazard statements VoidClassification system: NFPA ratings (scale $0 - 4$) $1 - 2 - 0$ Health = 0 Fire = 2 Reactivity = 0HMIS-ratings (scale $0 - 4$)HEALTHImage: Picture 1 - 2 - 2 Reactivity = 0HEALTHImage: Picture 2 - 2 Reactivity = 0HEALTHImage: Picture 2 - 2 Reactivity = 0Other hazards	
Results of PBT and vPvB assessment PBT: PBT - assessment not available.	
vPvB: vPvB - assessment not available.	

(Contd. on page 2)

Printing date 05/03/2018

Reviewed on 04/21/2011

Trade name: ICPL_0 Reagent

· Dangerous components:

(Contd. of page 1) 80-100%

67-68-5 dimethyl sulfoxide

4 First-aid measures

- · Description of first aid measures
- · General information: No special measures required.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact:
- Immediately wash with water and soap and rinse thoroughly.
- Consult doctor In case of complaints.
- · After eye contact:

Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.

- · After swallowing: Wash out mouth. Seek medical advice if discomfort occurs.
- Information for doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed
- No further relevant information available.

5 *Fire-fighting measures*

- · Extinguishing media
- · Suitable extinguishing agents:
- CO_{2} extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam. • Special hazards arising from the substance or mixture
- In case of fire, the following can be released: Sulphur oxides (SOx) Carbon monoxide and carbon dioxide Formaldehyde
- Methyl mercaptan
- · Advice for firefighters
- · Protective equipment: Wear self-contained respiratory protective device.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures Wear protective clothing.
 Ensure adequate ventilation Avoid contact with the eyes and skin.
 Environmental precautions: Do not allow to enter sewers/ surface or ground water.
 - Dilute with plenty of water.
 - *Methods and material for containment and cleaning up:* Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to item 13.
 - Reference to other sections
 See Section 7 for information on safe handling.
 See Section 8 for information on personal protection equipment.
 See Section 13 for disposal information.

(Contd. on page 3)

Printing date 05/03/2018

Reviewed on 04/21/2011

Trade name: ICPL_0 Reagent

(Contd. of page 2)

7 Handling and storage

- · Handling:
- · Precautions for safe handling Ensure good ventilation/exhaustion at the workplace.
- · Information about protection against explosions and fires: Keep ignition sources away Do not smoke.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: Store at -15 to -25 °C
- Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Store under inert gas.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

• Additional information about design of technical systems: No further data; see item 7.

· Control parameters

· Components with limit values that require monitoring at the workplace:

67-68-5 dimethyl sulfoxide (80-100%)

WEEL () Long-term value: 250 ppm

- Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

The usual precautionary measures for handling chemicals should be followed.

· Breathing equipment:

Short term filter device: Filter P2

• Protection of hands:

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

• Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• *Penetration time of glove material The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.*

 \cdot For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:

Chloroprene rubber, CR Nitrile rubber, NBR

• Eve protection: Safety glasses

• **Body protection:** Protective work clothing

(Contd. on page 4)

Printing date 05/03/2018

Reviewed on 04/21/2011

Trade name: ICPL_0 Reagent

(Contd. of page 3)

Physical and chemical proper	1165
Information on basic physical a	nd chemical properties
General Information	
Appearance:	
Form:	Solution
Color:	Colorless
Odor:	Characteristic
Change in condition	
Melting point/Melting range:	18 °C (64 °F)
Boiling point/Boiling range:	189 °C (372 °F)
Flash point:	87 °C (189 °F)
Ignition temperature:	270 °C (518 °F)
Auto igniting:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	1.8 Vol %
Upper:	Zers. Vol %
Vapor pressure at 20 °C (68 °F).	: 2.5 hPa (2 mm Hg)
Density:	Not determined.
Solubility in / Miscibility with	
<i>Water at 20 •C (68 •F):</i>	1000 g/l
Solvent content:	
Organic solvents:	> 90 %
VOC content:	19.0 %
Other information	The physico-chemical data correspond to pure DMSO.

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No further relevant informations available.
- Conditions to avoid high ttemperatures exposure to the light
 Incompatible materials: Avoid contact with:
- Oxidizers
- Acids
- Halides of organic and inorganic acids
- Methyl bromide, sodium hydride
- *Zinc and steel (in the presence of water)*
- Hazardous decomposition products: In case of fire: See Section 5

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- · Primary irritant effect:
- on the skin: No irritant effect.

(Contd. on page 5)

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Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/21/2011

Trade name: ICPL_0 Reagent

• on the eye: No irritating effect.

• Sensitization: No sensitizing effects known.

 \cdot Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

· Toxicity

- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow product to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · **vPvB:** Not applicable.
- Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Disposal must be made according to official regulations.

- · Uncleaned packagings:
- · Recommendation:

Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

• Recommended cleansing agent: Water, if necessary with cleansing agents.

· UN-Number		
· DOT, ADR, ADN, IMDG, IATA	Void	
UN monor chinning name		
· UN proper shipping name · DOT, ADR, ADN, IMDG, IATA	Void	

Printing date 05/03/2018

Reviewed on 04/21/2011

Trade name: ICPL_0 Reagent

	(Contd. of page
· Transport hazard class(es)	
· DOT, ADN · Class	Void
· ADR, IMDG, IATA	
· Class	Void
· Label	-
· Packing group	
· DOT, ĂDR, ÎMDG, IATA	Void
· Environmental hazards:	Not applicable.
· Marine pollutant:	No
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex	- II of
MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.
· UN ''Model Regulation'':	Void

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

- · Section 355 (extremely hazardous substances):
- None of the ingredients is listed.
- · Section 313 (Specific toxic chemical listings):
- None of the ingredients is listed.
- · TSCA (Toxic Substances Control Act):
- All ingredients are listed.
- · Proposition 65
- None of the ingredients is listed.
- · Chemicals known to cause cancer:
- None of the ingredients is listed.
- · Chemicals known to cause reproductive toxicity for females:
- None of the ingredients is listed.
- · Chemicals known to cause reproductive toxicity for males:
- None of the ingredients is listed.
- · Chemicals known to cause developmental toxicity:
- None of the ingredients is listed.
- · Cancerogenity categories
- · EPA (Environmental Protection Agency)
- None of the ingredients is listed.
- · TLV (Threshold Limit Value established by ACGIH)
- None of the ingredients is listed.
- · NIOSH-Ca (National Institute for Occupational Safety and Health)
- None of the ingredients is listed.
- · GHS label elements Void
- · Hazard pictograms Void
- · Signal word Void

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Reviewed on 04/21/2011

Trade name: ICPL_0 Reagent

(Contd. of page 6)

· Hazard statements Void

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- · Department issuing SDS: Product safety department
- · Contact: +49 6221 13840-35
- · Date of preparation / last revision 05/03/2018 / 4
- Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) ICAO: International Civil Aviation Organisation PBT: persistent, bioaccumulative, toxic substance (REACH) vPvB: very persistent, very bioaccumulative substance (REACH) REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals CLP: Regulation on classification, labelling and packaging of substances and mixtures ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association ACGIH: American Conference of Governmental Industrial Hygienists EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU) PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit * Data compared to the previous version altered.

Printing date 05/03/2018

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Reviewed on 04/13/2016

Identification	
Product identifier	CFD\/A
Trade name: <u>ICPL_6 Reagent</u>	serving scientists
Article number: ICPL.b Application of the substance / the mixture Laboratory ch	emicals
Details of the supplier of the safety data sheet Manufacturer/Supplier: SERVA Electrophoresis GmbH Carl-Benz-Str. 7 D-69115 Heidelberg Tel.: +49 6221 13840-0 FAX: +49 6221 13840-10 msds.info@serva.de	Gmbh
Information department: Product Safety department Tel. Emergency telephone number: Medical Emergency Information in case of poisoning: Poison Information Center Mainz - Phone: +49 (0) 6131 (advisory service in German or English language)	S
Hazard(s) identification	
Label elements GHS label elements The product is classified and labeled according to the Glo Hazard pictograms Void Signal word Warning Hazard statements Combustible liquid. Precautionary statements Keep away from flames and hot surfaces. – No smoking. Wear protective gloves/protective clothing/eye protection. In case of fire: Use for extinction: CO2, powder or water Store in a well-ventilated place. Keep cool. Dispose of contents/container in accordance with local/ree Classification system: NFPA ratings (scale 0 - 4)	/face protection. spray.
$\begin{array}{c} \textbf{Health} = 0\\ Fire = 2\\ Reactivity = 0 \end{array}$	
• •	
HMIS-ratings (scale 0 - 4)	
HMIS-ratings (scale $0 - 4$)HEALTH 0 FIRE 2 Fire 2 REACTIVITY 0 Reactivity 0	

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Reviewed on 04/13/2016

Trade name: ICPL_6 Reagent

· **vPvB**: vPvB - assessment not available.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

67-68-5 dimethyl sulfoxide

· Additional information: For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

- · Description of first aid measures
- · General information: No special measures required.
- · After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact:

Immediately wash with water and soap and rinse thoroughly.

Consult doctor In case of complaints.

· After eye contact:

Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.

- After swallowing: Wash out mouth. Seek medical advice if discomfort occurs.
- Information for doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed
- No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- Suitable extinguishing agents:
- CO_2 , extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam. • Special hazards arising from the substance or mixture
- In case of fire, the following can be released: Sulphur oxides (SOx) Carbon monoxide and carbon dioxide Formaldehyde
- Methyl mercaptan
- Advice for firefighters
- · Protective equipment: Wear self-contained respiratory protective device.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures
Wear protective clothing.
Ensure adequate ventilation
Avoid contact with the eyes and skin.
Environmental precautions:
Do not allow to enter sewers/ surface or ground water.
Dilute with plenty of water.
Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
(Contd. on page 3)

(Contd. of page 1)

80-100%

d. on page 3)

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: ICPL_6 Reagent

· Reference to other sections

See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

7 Handling and storage

- · Handling:
- **Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
- · Information about protection against explosions and fires: Keep ignition sources away Do not smoke.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: Store at -15 to -25 °C
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Store under inert gas.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- 67-68-5 dimethyl sulfoxide (80-100%)
- WEEL () Long-term value: 250 ppm
- Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Store protective clothing separately.

Immediately remove all soiled and contaminated clothing.

Avoid contact with the eyes and skin.

Wash hands before breaks and at the end of work.

· Breathing equipment:

Short term filter device: Filter P2

· Protection of hands:

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• *Penetration time of glove material The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.*

· For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:

Chloroprene rubber, CR

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Reviewed on 04/13/2016

Trade name: ICPL_6 Reagent

- Nitrile rubber, NBR
- · Eye protection: Safety glasses
- **Body protection:** Protective work clothing

9 Physical and chemical properties

• Information on basic physical a	nd chemical properties	
• General Information		
· Appearance:		
Form:	Solution	
Color:	Colorless	
· Odor:	Characteristic	
· Change in condition		
Melting point/Melting range:	18 °C (64 °F)	
Boiling point/Boiling range:	189 °C (372 °F)	
· Flash point:	87 °C (189 °F)	
· Ignition temperature:	270 °C (518 °F)	
°	Product is not selfigniting.	
· Auto igniting:		
· Danger of explosion:	Product does not present an explosion hazard.	
· Explosion limits:		
Lower:	1.8 Vol %	
Upper:	Zers. Vol %	
• Vapor pressure at 20 • C (68 • F): 2.5 hPa (2 mm Hg)		
· Density:	Not determined.	
· Solubility in / Miscibility with		
Water at 20 •C (68 •F):	1000 g/l	
· Solvent content:		
Organic solvents:	> 90.0 %	
VOC content:	90.0 %	
• Other information	The physico-chemical data correspond to pure DMSO.	

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No further relevant informations available.
- Conditions to avoid high ttemperatures exposure to the light
 Incompatible materials: Avoid contact with:
- Oxidizers

Acids

- Halides of organic and inorganic acids
- Methyl bromide, sodium hydride
- Zinc and steel (in the presence of water)
- Hazardous decomposition products: In case of fire: See Section 5

(Contd. on page 5)

US

(Contd. of page 3)

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: ICPL_6 Reagent

(Contd. of page 4)

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- Primary irritant effect:
- on the skin: No irritant effect.
- on the eye: No irritating effect.
- Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

- · Carcinogenic categories
- · IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- Other information: The product is easily biodegradable.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- *Mobility in soil* No further relevant information available.
- Additional ecological information:

· General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow product to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Disposal must be made according to official regulations.

- · Uncleaned packagings:
- · Recommendation:

Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

· Recommended cleansing agent: Water, if necessary with cleansing agents.

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Reviewed on 04/13/2016

Trade name: ICPL_6 Reagent

(Contd. of page 5)

UN-Number DOT, ADR, ADN, IMDG, IATA	Void
UN proper shipping name DOT, ADR, ADN, IMDG, IATA	Void
Transport hazard class(es)	
DOT, ADN	
Class	Void
ADR, IMDG, IATA	
Class	Void
Label	-
Packing group	
DOT, ADR, IMDG, IATA	Void
Environmental hazards:	Not applicable.
Marine pollutant:	No
Special precautions for user	Not applicable.
Transport in bulk according to Annex	II of
MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	Not dangerous according to the above specifications.
UN ''Model Regulation'':	Void

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

· Section 355 (extremely hazardous substances):

None of the ingredients is listed.

· Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65

None of the ingredients is listed.

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

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US

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: ICPL_6 Reagent

	(Contd. of page
TLV (Threshold Limit Valu	• *
None of the ingredients is lis	ted.
NIOSH-Ca (National Institu	te for Occupational Safety and Health)
None of the ingredients is lis	
GHS label elements	
	l labeled according to the Globally Harmonized System (GHS).
Hazard pictograms Void	
Signal word Warning	
Hazard statements	
Combustible liquid.	
Precautionary statements	
Keep away from flames and	hot surfaces. – No smoking.
1 10 0	ective clothing/eye protection/face protection.
	ction: CO2, powder or water spray.
Store in a well-ventilated pla	
	r in accordance with local/regional/national/international regulations.
	: A Chemical Safety Assessment has not been carried out.
Other information	
This information is based or	n our present knowledge. However, this shall not constitute a guarantee for a
	l shall not establish a legally valid contractual relationship.
Department issuing SDS: Ph	
Contact: +49 6221 13840-3.	5
Contact: +49 6221 13840-3. Date of preparation / last re	5 vision 05/03/2018 / 4
Contact: +49 6221 13840-3. Date of preparation / last re Abbreviations and acronym	5 vision 05/03/2018 / 4 s:
Contact: +49 6221 13840-3. Date of preparation / last re Abbreviations and acronym. RID: Règlement international conc	5 vision 05/03/2018 / 4 s: ernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning
Contact: +49 6221 13840-3. Date of preparation / last re Abbreviations and acronyms RID: Règlement international conc International Transport of Dangero	5 vision 05/03/2018 / 4 s: ernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning us Goods by Rail)
Contact: +49 6221 13840-3. Date of preparation / last re Abbreviations and acronym. RID: Règlement international conc International Transport of Dangero ICAO: International Civil Aviation (5 vision 05/03/2018 / 4 s: ernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning us Goods by Rail) Organisation
Contact: +49 6221 13840-3. Date of preparation / last re Abbreviations and acronyms RID: Règlement international conc International Transport of Dangero	5 vision 05/03/2018 / 4 s: ernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning us Goods by Rail) Organisation xic substance (REACH)
Contact: +49 6221 13840-3. Date of preparation / last re Abbreviations and acronyma RID: Règlement international conc International Transport of Dangero ICAO: International Civil Aviation (PBT: persistent, bioaccumulative, to vPvB: very persistent, very bioaccut REACH: Regulation concerning the	5 vision 05/03/2018 / 4 s: ernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning us Goods by Rail) Organisation xic substance (REACH) nulative substance (REACH) Registration, Evaluation, Authorisation and Restriction of Chemicals
Contact: +49 6221 13840-3. Date of preparation / last re Abbreviations and acronyma RID: Règlement international conc International Transport of Dangero ICAO: International Civil Aviation O PBT: persistent, bioaccumulative, to vPvB: very persistent, very bioaccun REACH: Regulation concerning the CLP: Regulation on classification, la	5 vision 05/03/2018 / 4 s: ernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning us Goods by Rail) Organisation xic substance (REACH) mulative substance (REACH) Registration, Evaluation, Authorisation and Restriction of Chemicals abelling and packaging of substances and mixtures
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Printing date 05/03/2018

Reviewed on 04/13/2016

Identification	
Product identifier	SERVA
Trade name: <u>Stop Solution 1</u>	serving scientists
Article number: ICPL.c Application of the substance / the mixture Laboratory chemicals	
Details of the supplier of the safety data sheet Manufacturer/Supplier: SERVA Electrophoresis GmbH Carl-Benz-Str. 7 D-69115 Heidelberg Tel.: +49 6221 13840-0 FAX: +49 6221 13840-10 msds.info@serva.de	Gmbh
Information department: Product Safety department Tel.: +49 622 Emergency telephone number: Medical Emergency Information in case of poisoning: Poison Information Center Mainz - Phone: +49 (0) 6131 19240 (advisory service in German or English language)	21 13840-35
Hazard(s) identification	
Label elements GHS label elements Void Hazard pictograms Void Signal word Void Hazard statements Void Classification system: NFPA ratings (scale $0 - 4$) fire = 0 Reactivity = 0 HMIS-ratings (scale $0 - 4$) HEALTH 1 FIRE 0 REACTIVITY 0 Health = 1 Fire = 0 Reactivity = 0 Other hazards Results of PBT and vPvB assessment PBT: PBT - assessment not available. vPvB: vPvB - assessment not available.	
Composition/information on ingredients	
Chemical characterization: Mixtures Description: Mixture of the substances listed below with nonhazard	lous additions.
Dangerous components:	
Dangerous components.	

- US

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• Additional information: For the wording of the listed hazard phrases refer to section 16.

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4 First-aid measures

- · Description of first aid measures
- · General information: No special measures required.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact:

Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.

- · After swallowing: Wash out mouth. Seek medical advice if discomfort occurs.
- Information for doctor:

• Most important symptoms and effects, both acute and delayed No further relevant information available.

• *Indication of any immediate medical attention and special treatment needed* No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
- Suitable extinguishing agents:
- CO2 extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- Protective equipment: Wear self-contained respiratory protective device.

6 Accidental release measures

 Personal precautions, protective equipment and emergency procedures Wear protective clothing.
 Ensure adequate ventilation Avoid contact with the eyes and skin.
 Environmental precautions: Do not allow to enter sewers/ surface or ground water.

Dilute with plenty of water.

• *Methods and material for containment and cleaning up:* Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to item 13.

- · Reference to other sections
- See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

7 Handling and storage

- · Handling:
- · Precautions for safe handling Ensure good ventilation/exhaustion at the workplace.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: Store at -15 to -25 °C
- Information about storage in one common storage facility: Not required.
- *Further information about storage conditions:* Keep receptacle tightly sealed and store in dry conditions.

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• Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

• Additional information about design of technical systems: No further data; see item 7.

- · Control parameters
- Components with limit values that require monitoring at the workplace: The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- General protective and hygienic measures: Keep away from foodstuffs, beverages and feed.
 Store protective clothing separately.
 Immediately remove all soiled and contaminated clothing.
 Avoid contact with the eyes and skin.
 Wash hands before breaks and at the end of work.
- **Breathing equipment:** Short term filter device: Filter P2
- Protection of hands:
- Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:

Natural rubber, NR Nitrile rubber, NBR

- Eye protection: Safety glasses
- · Body protection: Protective work clothing

Information on basic physica General Information	l and chemical properties	
· Appearance:		
Form:	Solution	
Color:	Colorless	
Odor:	Odorless	
• pH-value at 20 •C (68 •F):	8.5	

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		(Contd. of page 3)
• Change in condition Melting point/Melting range: Boiling point/Boiling range:		
· Flash point:	Not applicable.	
· Auto igniting:	Product is not selfigniting.	
· Danger of explosion:	Product does not present an explosion hazard.	
· Density:	Not determined.	
· Solubility in / Miscibility with Water:	Fully miscible.	
 Solvent content: Organic solvents: Other information 	0.0 % No further relevant information available.	

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No further relevant informations available.
- *Conditions to avoid No further relevant information available.*
- *Incompatible materials:* No further relevant information available.
- · Hazardous decomposition products: No further relevant informations available.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- · Primary irritant effect:
- on the skin: No irritant effect.
- on the eye: No irritating effect.
- Sensitization: No sensitizing effects known.
- Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

- · Carcinogenic categories
- · IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

· Toxicity

- Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.

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US

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Safety Data Sheet acc. to OSHA HCS

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· Behavior in environmental systems:

- · Bioaccumulative potential No further relevant information available.
- \cdot **Mobility in soil** No further relevant information available.
- \cdot Additional ecological information:
- General notes: Water hazard class 2 (S

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- *PBT:* Not applicable.

• **vPvB:** Not applicable.

· Other adverse effects No further relevant information available.

13 Disposal considerations

· Waste treatment methods

· Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Disposal must be made according to official regulations.

· Uncleaned packagings:

· Recommendation:

Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

· Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

14 Transport information	
· UN-Number · DOT, ADR, ADN, IMDG, IATA	Void
· UN proper shipping name · DOT, ADR, ADN, IMDG, IATA	Void
· Transport hazard class(es)	
· DOT, ADN · Class	Void
· ADR, IMDG, IATA · Class · Label	Void -
· Packing group · DOT, ADR, IMDG, IATA	Void
• Environmental hazards: • Marine pollutant:	Not applicable. No
· Special precautions for user	Not applicable.
• Transport in bulk according to Annex MARPOL73/78 and the IBC Code	II of Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.
· UN "Model Regulation":	Void

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	15 Regulatory information	
	· Safety, health and environmental regulations/legislation specific for the substance or mixture	
	· Section 355 (extremely hazardous substances):	
	None of the ingredients is listed.	
ĺ	· Section 313 (Specific toxic chemical listings):	
	None of the ingredients is listed.	
ì		

• TSCA (Toxic Substances Control Act): All ingredients are listed.

· Proposition 65

None of the ingredients is listed.

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

• Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements Void

· Hazard pictograms Void

Signal word Void

· Hazard statements Void

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: Product safety department

· Contact: +49 6221 13840-35

· Date of preparation / last revision 05/03/2018 / 4

• Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) ICAO: International Civil Aviation Organisation

PBT: persistent, bioaccumulative, toxic substance (REACH)

vPvB: very persistent, very bioaccumulative substance (REACH)

REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

CLP: Regulation on classification, labelling and packaging of substances and mixtures

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

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Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Stop Solution 1

EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit • * Data compared to the previous version altered.

Printing date 05/03/2018

*

Reviewed on 04/13/2016

Product identifier	SFR\/A	
Trade name: <u>Reduction Solution</u>	serving scientists	
Article number: ICPL.d Application of the substance / the a	mixture Laboratory chemicals	
Details of the supplier of the safety Manufacturer/Supplier: SERVA Electrophoresis GmbH Carl-Benz-Str. 7 D-69115 Heidelberg Tel.: +49 6221 13840-0 FAX: +49 6221 13840-10 msds.info@serva.de	y data sheet	
Information department: Product & Emergency telephone number: Medical Emergency Information in Poison Information Center Mainz - (advisory service in German or Eng	Phone: +49 (0) 6131 19240	
GHS05	C.	
	eye damage.	
Label elements GHS label elements	eye damage. ed according to the Globally Harmonized System (GHS).	
Label elements GHS label elements The product is classified and labele Hazard pictograms GHS05 Signal word Danger Hazard-determining components of Tris(2-carboxyethyl)phosphine hyd Hazard statements Causes serious eye damage. Precautionary statements Wear eye protection / face protectio	ed according to the Globally Harmonized System (GHS). o f labeling: rochloride on. tter for several minutes. Remove contact lenses, if present and eas	y to
Label elements GHS label elements The product is classified and labele Hazard pictograms GHS05 Signal word Danger Hazard-determining components of Tris(2-carboxyethyl)phosphine hydr Hazard statements Causes serious eye damage. Precautionary statements Wear eye protection / face protection If in eyes: Rinse cautiously with wa Continue rinsing. Immediately call a POISON CENTE Classification system:	ed according to the Globally Harmonized System (GHS). o f labeling: rochloride on. tter for several minutes. Remove contact lenses, if present and eas	y to
Label elements GHS label elements The product is classified and labele Hazard pictograms GHS05 Signal word Danger Hazard-determining components of Tris(2-carboxyethyl)phosphine hydr Hazard statements Causes serious eye damage. Precautionary statements Wear eye protection / face protection If in eyes: Rinse cautiously with wa Continue rinsing. Immediately call a POISON CENTE Classification system: NFPA ratings (scale 0 - 4) Health = 1 Fire = 0	ed according to the Globally Harmonized System (GHS). o f labeling: rochloride on. tter for several minutes. Remove contact lenses, if present and eas	y to
Label elements GHS label elements The product is classified and labele Hazard pictograms GHS05 Signal word Danger Hazard-determining components of Tris(2-carboxyethyl)phosphine hydr Hazard statements Causes serious eye damage. Precautionary statements Wear eye protection / face protection If in eyes: Rinse cautiously with war Continue rinsing. Immediately call a POISON CENTE Classification system: NFPA ratings (scale 0 - 4) Health = 1 Fire = 0 Reactivity = 0	ed according to the Globally Harmonized System (GHS). o f labeling: rochloride on. tter for several minutes. Remove contact lenses, if present and eas	y to

(Contd. of page 1)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Reduction Solution

- Other hazards
- · Results of PBT and vPvB assessment
- **PBT:** PBT assessment not available.
- **vPvB**: vPvB assessment not available.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

1310-73-2 sodium hydroxide

· Additional information: For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

- · Description of first aid measures
- · General information: No special measures required.
- · After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact:

Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.

- · After swallowing: Wash out mouth. Seek medical advice if discomfort occurs.
- Information for doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- *Indication of any immediate medical attention and special treatment needed No further relevant information available.*

5 Fire-fighting measures

- · Extinguishing media
- Suitable extinguishing agents:

CO2 extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- Special hazards arising from the substance or mixture No further relevant information available.
- Advice for firefighters
- · Protective equipment: Wear self-contained respiratory protective device.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures Wear protective clothing.
 Ensure adequate ventilation Avoid contact with the eyes and skin.
 Environmental precautions: Do not allow to enter sewers/ surface or ground water. Dilute with plenty of water.
- Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to item 13.
- **Reference to other sections** See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment.

(Contd. on page 3)

US

1-3%

(Contd. of page 2)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Reduction Solution

See Section 13 for disposal information.

7 Handling and storage

- · Handling:
- · Precautions for safe handling No special measures required.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: Store at -15 to -25 °C
- Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed and store in dry conditions.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

• Additional information about design of technical systems: No further data; see item 7.

- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- General protective and hygienic measures:
- The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Short term filter device: Filter P2
- Protection of hands:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• *Penetration time of glove material The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.*

- \cdot For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:
- Natural rubber, NR Nitrile rubber, NBR
- **Eye protection:** Safety glasses
- Body protection: Protective work clothing

(Contd. on page 4)

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Reduction Solution

 $(Contd. \ of \ page \ 3)$

Information on basic physical	and chamical properties
General Information	ana chemicai properties
Appearance:	
Form:	Solution
Color:	Colorless
Odor:	Odorless
<i>pH-value at 20 °C (68 °F):</i>	8.5
Change in condition Melting point/Melting range Boiling point/Boiling range:	
Flash point:	not determined
Auto igniting:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.
Density:	Not determined.
Solubility in / Miscibility with Water:	Fully miscible.
Solvent content:	
Organic solvents:	0.0 %
Solids content:	10 %
Other information	No further relevant information available.

10 Stability and reactivity

- *Reactivity* No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No further relevant informations available.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No further relevant informations available.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- · Primary irritant effect:
- on the skin: No irritant effect.
- on the eye: No irritating effect.
- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

(Contd. on page 5)

US-

(Contd. of page 4)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Reduction Solution

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- Additional ecological information:
- General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow product to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Disposal must be made according to official regulations.

- · Uncleaned packagings:
- · Recommendation:

Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

• Recommended cleansing agent: Water, if necessary with cleansing agents.

UN-Number		
DOT	UN3265	
ADR, IMDG, IATA	Void	
· UN proper shipping name		
ADR, IMDG, IATA	Void	
· Transport hazard class(es)		
·DOT		
· Class	8 Corrosive substances	
· Label	8	
· ADR, IMDG, IATA		
· Class	Void	
· Label	-	
· Packing group		
· DOT	II	

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Reduction Solution

	(Contd. of page
ADR, IMDG, IATA	Void
Environmental hazards:	
Marine pollutant:	No
· Special precautions for user	Not applicable.
Transport in bulk according to Annex	II of
MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.
· ADR	
· Excepted quantities (EQ)	Code: -
	Maximum net quantity per inner packaging: -
	Maximum net quantity per outer packaging: -
· IMDG	
· Excepted quantities (EQ)	Code: -
	Maximum net quantity per inner packaging: -
	Maximum net quantity per outer packaging: -
· UN ''Model Regulation'':	Void

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

None of the ingredients is listed.

 \cdot Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65

None of the ingredients is listed.

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

• Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

 \cdot NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms GHS05

(Contd. of page 6)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Reduction Solution

· Signal word Danger

- Hazard-determining components of labeling: Tris(2-carboxyethyl)phosphine hydrochloride
- Hazard statements
- Causes serious eye damage. • **Precautionary statements** Wear eye protection / face protection. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- · Department issuing SDS: Product safety department
- · Contact: +49 6221 13840-35
- · Date of preparation / last revision 05/03/2018 / 6

· Abbreviations and acronyms: RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) ICAO: International Civil Aviation Organisation PBT: persistent, bioaccumulative, toxic substance (REACH) vPvB: very persistent, very bioaccumulative substance (REACH) REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals CLP: Regulation on classification, labelling and packaging of substances and mixtures ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association ACGIH: American Conference of Governmental Industrial Hygienists EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit Eye Dam. 1: Serious eye damage/eye irritation - Category 1 * Data compared to the previous version altered.

Printing date 05/03/2018

Reviewed on 04/21/2011

1 Identification	
· Product identifier	CEDI /A
· Trade name: Alkylation Reagent	SERVA
 Article number: ICPL.e CAS Number: 144-48-9 EC number: 205-630-1 Application of the substance / the mixture Laboratory chemicals 	
 Details of the supplier of the safety data sheet Manufacturer/Supplier: SERVA Electrophoresis GmbH Carl-Benz-Str. 7 D-69115 Heidelberg Tel.: +49 6221 13840-0 FAX: +49 6221 13840-10 msds.info@serva.de 	SISCIN
 Information department: Product Safety department Tel.: +49 6221 1 Emergency telephone number: Medical Emergency Information in case of poisoning: Poison Information Center Mainz - Phone: +49 (0) 6131 19240 (advisory service in German or English language) 	3840-35
 Classification of the substance or mixture GHS07 Skin Irrit. 2 H315 Causes skin irritation. Eye Irrit. 2A H319 Causes serious eye irritation. 	
STOT SE 3 H335 May cause respiratory irritation.	
 Label elements GHS label elements The substance is classified and labeled according to the Globally Harr Hazard pictograms GHS07 Signal word Warning 	nonized System (GHS).
· Hazard-determining components of labeling:	
2-iodoacetamide	
 Hazard statements Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. Precautionary statements Avoid breathing dust/fume/gas/mist/vapors/spray Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves / eye protection / face protection. IF ON SKIN: Wash with plenty of water. IF INHALED: Remove person to fresh air and keep comfortable for br 	
Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. Precautionary statements Avoid breathing dust/fume/gas/mist/vapors/spray Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves / eye protection / face protection. IF ON SKIN: Wash with plenty of water.	

Printing date 05/03/2018

Reviewed on 04/21/2011

Trade name: Alkylation Reagent

Call a POISON CENTER/doctor if you feel unwell. Specific treatment (see on this label). If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. Store in a well-ventilated place. Keep container tightly closed. Store locked up. Dispose of contents/container in accordance with local/regional/national/international regu • Classification system: • NFPA ratings (scale 0 - 4)	(Contd. of page 1) Ilations.
Health = 1 Fire = 0 Reactivity = 0 HMIS-ratings (scale 0 - 4) $HEALTH = 1FIRE 0REACTIVITY 0Reactivity = 0HEALTH = 1Fire = 0Reactivity = 0HEALTH = 1HEALTH = 1Fire = 0Reactivity = 0HEALTH = 1HEALTH = 1HE$	
 3 Composition/information on ingredients Chemical characterization: Substances CAS No. Description 144-48-9 2-iodoacetamide Identification number(s) EC number: 205-630-1 Description: Empirical formula: C₂H₄INO 	

· MŴ: 185.0

4 First-aid measures

- · Description of first aid measures
- · After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact:
- Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.
- · After swallowing: Wash out mouth. Seek medical advice if discomfort occurs.
- Information for doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- *Indication of any immediate medical attention and special treatment needed No further relevant information available.*

5 Fire-fighting measures

- · Extinguishing media
- Suitable extinguishing agents:

CO₂ extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

(Contd. on page 3)

Printing date 05/03/2018

Reviewed on 04/21/2011

Trade name: Alkylation Reagent

• Special hazards arising from the substance or mixture In case of fire, the following can be released: Nitrogen oxides (NOx) Hydrogen iodide (HI) Carbon monoxide and carbon dioxide

• Advice for firefighters

• Protective equipment: Wear self-contained respiratory protective device.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures Wear protective clothing. Ensure adequate ventilation Avoid contact with the eyes and skin.
 Environmental precautions: Do not allow to enter sewers/ surface or ground water.
 Methods and material for containment and cleaning up: Pick up mechanically. Dispose contaminated material as waste according to item 13.
 Reference to other sections See Section 7 for information on safe handling.
 - See Section 8 for information on personal protection equipment.
 - See Section 13 for disposal information.

7 Handling and storage

· Handling:

 Precautions for safe handling Ensure good ventilation/exhaustion at the workplace.
 Prevent formation of dust.
 Avoid contact with eyes and skin.

· Information about protection against explosions and fires: Keep ignition sources away - Do not smoke.

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: Store at -15 to -25 °C
- · Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed and store in dry conditions. Keep receptacle tightly sealed.
- *Specific end use(s) No further relevant information available.*

8 Exposure controls/personal protection

• Additional information about design of technical systems: No further data; see item 7.

- · Control parameters
- · Components with limit values that require monitoring at the workplace: Not required.
- Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- General protective and hygienic measures: Keep away from foodstuffs, beverages and feed. Store protective clothing separately. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Avoid contact with the eyes and skin.

(Contd. of page 2)

(Contd. on page 4)

US

Printing date 05/03/2018

Reviewed on 04/21/2011

Trade name: Alkylation Reagent

(Contd. of page 3)
Breathing equipment:
Short term filter device:
Filter P2
· Protection of hands:
Neoprene gloves
Protective gloves
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/
the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the
degradation
· Material of gloves
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
• Penetration time of glove material
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
\cdot For the permanent contact of a maximum of 15 minutes gloves made of the following materials are
suitable:
Neoprene gloves
Nitrile rubber, NBR
• Eye protection: Safety glasses
· Body protection: Protective work clothing

9 Physical and chemical properties

 Information on basic physical and chemical properties General Information Appearance: 	
Form:	Crystalline
Color:	white to almost white
· Odor:	uncharacteristic
• Change in condition Melting point/Melting range: Boiling point/Boiling range:	
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Product is not flammable.
• Danger of explosion:	Product does not present an explosion hazard.
· Density:	Not determined.
 Solubility in / Miscibility with Water: Alcohols: Organic solvents: 	Soluble. Readily soluble. 0.0 %
• Solids content: • Other information	100.0 % No further relevant information available.

10 Stability and reactivity

· Reactivity No further relevant information available.

· Chemical stability

• Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

· Possibility of hazardous reactions No further relevant informations available.

Printing date 05/03/2018

Reviewed on 04/21/2011

Trade name: Alkylation Reagent

- · Conditions to avoid No further relevant information available.
- Incompatible materials: Avoid contact with strong oxidizers.
- Hazardous decomposition products: In case of fire: See Section 5

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- · Primary irritant effect:
- on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.
- · Sensitization: Sensitization possible through skin contact.
- Additional toxicological information:
- · Carcinogenic categories
- · IARC (International Agency for Research on Cancer)

Substance is not listed.

· NTP (National Toxicology Program)

Substance is not listed.

- · OSHA-Ca (Occupational Safety & Health Administration)
- Substance is not listed.

12 Ecological information

- · Toxicity
- Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Water hazard class 2 (Self-assessment): hazardous for water

- Do not allow product to reach ground water, water course or sewage system.
- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- **vPvB:** Not applicable.
- Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Disposal must be made according to official regulations.

- · Uncleaned packagings:
- · Recommendation:

Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

• Recommended cleansing agent: Water, if necessary with cleansing agents.

(Contd. on page 6)

(Contd. of page 4)

Printing date 05/03/2018

Reviewed on 04/21/2011

Trade name: Alkylation Reagent

(Contd. of page 5)

Transport information	
UN-Number DOT, ADR, ADN, IMDG, IATA	Void
UN proper shipping name DOT, ADR, ADN, IMDG, IATA	Void
Transport hazard class(es)	
DOT, ADN Class	Void
ADR, IMDG, IATA Class Label	Void -
Packing group DOT, ADR, IMDG, IATA	Void
Environmental hazards: Marine pollutant:	Not applicable. No
Special precautions for user	Not applicable.
Transport in bulk according to Annex MARPOL73/78 and the IBC Code	II of Not applicable.
Transport/Additional information:	Not dangerous according to the above specifications.
UN ''Model Regulation'':	Void

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

• Section 355 (extremely hazardous substances):

Substance is not listed.

· Section 313 (Specific toxic chemical listings):

Substance is not listed.

· TSCA (Toxic Substances Control Act):

Substance is listed.

• **Proposition 65** Substance is not listed.

· Chemicals known to cause cancer:

Substance is not listed.

 \cdot Chemicals known to cause reproductive toxicity for females:

Substance is not listed.

· Chemicals known to cause reproductive toxicity for males:

Substance is not listed.

· Chemicals known to cause developmental toxicity:

Substance is not listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

Substance is not listed.

(Contd. on page 7)

US

Printing date 05/03/2018

Reviewed on 04/21/2011

Trade name: Alkylation Reagent

TIV (Thread and Limit Value and all all as ACCIII)	(Contd. of page
TLV (Threshold Limit Value established by ACGIH) Substance is not listed.	
NIOSH-Ca (National Institute for Occupational Safety and Health)	
Substance is not listed.	
GHS label elements	
The substance is classified and labeled according to the Globally Harmonized	System (GHS).
Hazard pictograms GHS07	
Signal word Warning	
Hazard-determining components of labeling:	
2-iodoacetamide	
Hazard statements	
Causes skin irritation.	
Causes serious eye irritation.	
May cause respiratory irritation.	
Precautionary statements	
Avoid breathing dust/fume/gas/mist/vapors/spray	
Wash thoroughly after handling.	
Use only outdoors or in a well-ventilated area.	
Wear protective gloves / eye protection / face protection.	
IF ON SKIN: Wash with plenty of water.	
IF INHALED: Remove person to fresh air and keep comfortable for breathing.	
If in eyes: Rinse cautiously with water for several minutes. Remove contact len	ses, if present and easy to d
Continue rinsing.	
Call a POISON CENTER/doctor if you feel unwell.	
Specific treatment (see on this label).	
If skin irritation occurs: Get medical advice/attention.	
If eye irritation persists: Get medical advice/attention.	
Take off contaminated clothing and wash it before reuse.	
Store in a well-ventilated place. Keep container tightly closed.	
Store locked up.	
Dispose of contents/container in accordance with local/regional/national/inter	
Chemical safety assessment: A Chemical Safety Assessment has not been carri	ved out.
Other information	
This information is based on our present knowledge. However, this shall not a specific product features and shall not establish a legally valid contractual relations.	0 0
Department issuing SDS: Product safety department	
Contact: +49 6221 13840-35	
Date of preparation / last revision 05/03/2018 / 5	
Abbreviations and acronyms:	
RID: Règlement international concernant le transport des marchandises dangereuses par chemin International Transport of Dangerous Goods by Rail)	n de fer (Regulations Concerning t
ICAO: International Civil Aviation Organisation	
PBT: persistent, bioaccumulative, toxic substance (REACH)	
vPvB: very persistent, very bioaccumulative substance (REACH)	
REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chen CLP: Regulation on classification, labelling and packaging of substances and mixtures	nicals
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agr	reement concerning the Internation
Carriage of Dangerous Goods by Road)	0
IMDG: International Maritime Code for Dangerous Goods	
DOT: US Department of Transportation IATA: International Air Transport Association	
ACGIH: American Conference of Governmental Industrial Hygienists	

- ACGIH: American Conference of Governmental Industrial Hygienists EINECS: European Inventory of Existing Commercial Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA)

- HMIS: Hazardous Materials Identification System (USA) PBT: Persistent, Bioaccumulative and Toxic

(Contd. on page 8)

US

Printing date 05/03/2018

Reviewed on 04/21/2011

Trade name: Alkylation Reagent

vPvB: very Persistent and very Bioaccumulative	
NIOSH: National Institute for Occupational Safety	
OSHA: Occupational Safety & Health	
TLV: Threshold Limit Value	
PEL: Permissible Exposure Limit	
REL: Recommended Exposure Limit	
Skin Irrit. 2: Skin corrosion/irritation – Category 2	
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A	
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3	
\cdot * Data compared to the previous version altered.	

(Contd. of page 7)

Printing date 05/03/2018

Reviewed on 04/13/2016

1 Identification	
· Product identifier	SFRVA
• Trade name: <u>Stop solution 2</u>	serving scientists
• Article number: ICPL.f • Application of the substance / the mixture Laboratory chemicals	
 Details of the supplier of the safety data sheet Manufacturer/Supplier: SERVA Electrophoresis GmbH Carl-Benz-Str. 7 D-69115 Heidelberg Tel.: +49 6221 13840-0 FAX: +49 6221 13840-10 msds.info@serva.de 	Gmbh
 Information department: Product Safety department Tel.: +49 6221 13 Emergency telephone number: Medical Emergency Information in case of poisoning: Poison Information Center Mainz - Phone: +49 (0) 6131 19240 (advisory service in German or English language) 	3840-35
2 Hazard(s) identification	
Carc. 2 H351 Suspected of causing cancer.	
Skin Sens. 1 H317 May cause an allergic skin reaction.	
 Label elements GHS label elements The product is classified and labeled according to the Globally Harmon Hazard pictograms GHS05, GHS07, GHS08 Signal word Warning 	nized System (GHS).
 Hazard-determining components of labeling: hydroxylammonium chloride Hazard statements May be corrosive to metals. Causes skin irritation. 	
Causes serious eye irritation. May cause an allergic skin reaction. Suspected of causing cancer.	

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Stop solution 2

(Contd. of page 1) · Precautionary statements
Obtain special instructions before use.
Wear protective gloves/protective clothing/eye protection/face protection.
IF ON SKIN: Wash with plenty of soap and water.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
If skin irritation or rash occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.
Store locked up.
Store in corrosive resistant container with a resistant inner liner.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· Classification system:
· NFPA ratings (scale 0 - 4)
Health = 1
Fire = 0
0 Reactivity = 0
HMIS-ratings (scale 0 - 4)
HEALTH 1 Health = $*1$
FIRE 0 Fire = 0
REACTIVITY O $Reactivity = 0$
· Other hazards
· Results of PBT and vPvB assessment
· PBT : PBT - assessment not available.
· vPvB: vPvB - assessment not available.
3 Composition/information on ingredients
· Chemical characterization: Mixtures
• Description: Mixture of the substances listed below with nonhazardous additions.
• •
· Dangerous components:
5470-11-1 hydroxylammonium chloride 5-15%
• Additional information: For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

- · Description of first aid measures
- General information:

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- · After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact:

Immediately wash with water and soap and rinse thoroughly. Consult doctor In case of complaints.

· After eye contact:

Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.

- · After swallowing: Wash out mouth. Seek medical advice if discomfort occurs.
- · Information for doctor:
- Most important symptoms and effects, both acute and delayed No further relevant information available.

(Contd. on page 3)

(Contd. of page 2)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Stop solution 2

• *Indication of any immediate medical attention and special treatment needed No further relevant information available.*

5 Fire-fighting measures

- · Extinguishing media
- Suitable extinguishing agents:
- CO₂ extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- Special hazards arising from the substance or mixture No further relevant information available.
- Advice for firefighters
- · Protective equipment: Wear self-contained respiratory protective device.

6 Accidental release measures

- *Personal precautions, protective equipment and emergency procedures* Wear protective clothing. Ensure adequate ventilation Avoid contact with the eyes and skin.
- *Environmental precautions:* Do not allow to enter sewers/ surface or ground water. Dilute with plenty of water.
- *Methods and material for containment and cleaning up:* Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to item 13.
- Reference to other sections
 See Section 7 for information on safe handling.
 See Section 8 for information on personal protection equipment.
 See Section 13 for disposal information.

7 Handling and storage

- · Handling:
- Precautions for safe handling Ensure good ventilation/exhaustion at the workplace.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: Store at -15 to -25 °C
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed and store in dry conditions.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- Components with limit values that require monitoring at the workplace: The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls

- · Personal protective equipment:
- General protective and hygienic measures: Keep away from foodstuffs, beverages and feed.

(Contd. on page 4)

US -

(Contd. of page 3)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Stop solution 2

Store protective clothing separately.

Immediately remove all soiled and contaminated clothing. Avoid contact with the eyes and skin. Wash hands before breaks and at the end of work. • Breathing equipment: Short term filter device: Filter P2 · Protection of hands: Neoprene gloves The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation · Material of gloves The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. · Penetration time of glove material The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed. For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable: Natural rubber, NR Nitrile rubber, NBR · Eye protection: Tightly sealed goggles · Body protection: Protective work clothing

Information on basic physical d	and chemical properties
· General Information	I I I
· Appearance:	
Form:	Solution
Color:	Colorless
· Odor:	Odorless
• pH-value at 20 •C (68 •F):	8.3
Change in condition Melting point/Melting range: Boiling point/Boiling range:	
· Flash point:	not determined
· Auto igniting:	Product is not selfigniting.
• Danger of explosion:	Product does not present an explosion hazard.
Density:	Not determined.
· Solubility in / Miscibility with Water:	Fully miscible.
· Solvent content:	
Organic solvents:	0.0 %
• Other information	No further relevant information available.

(Contd. on page 5)

Printing date 05/03/2018

Reviewed on 04/13/2016

(Contd. of page 4)

10 Stability and reactivity

Trade name: Stop solution 2

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No further relevant informations available.
- *Conditions to avoid* No further relevant information available.
- *Incompatible materials:* No further relevant information available.
- · Hazardous decomposition products: No further relevant informations available.

11 Toxicological information

- · Information on toxicological effects
- Acute toxicity:
- · LD/LC50 values that are relevant for classification:

5470-11-1 hydroxylammonium chloride

Oral LD50 400 mg/kg (Maus)

141 mg/kg (rat)

- Primary irritant effect:
- on the skin: No irritant effect.
- on the eye: No irritating effect.
- Sensitization: Sensitization possible through skin contact.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- *Mobility in soil* No further relevant information available.
- Additional ecological information:
- · General notes:
- Water hazard class 3 (Self-assessment): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

- · Results of PBT and vPvB assessment
- *PBT:* Not applicable.
- **vPvB:** Not applicable.
- · Other adverse effects No further relevant information available.

(Contd. on page 6)

Printing date 05/03/2018

Trade name: Stop solution 2

Reviewed on 04/13/2016

(Contd. of page 5)

13 Disposal considerations

· Waste treatment methods

· Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Disposal must be made according to official regulations.

- · Uncleaned packagings:
- · Recommendation:

Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

• Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

14 Transport information	
· UN-Number · DOT, ADR, ADN, IMDG, IATA	Void
· UN proper shipping name · DOT, ADR, ADN, IMDG, IATA	Void
· Transport hazard class(es)	
· DOT, ADN · Class	Void
· ADR, IMDG, IATA · Class · Label	Void -
· Packing group · DOT, ADR, IMDG, IATA	Void
• Environmental hazards: • Marine pollutant:	Not applicable. No
· Special precautions for user	Not applicable.
• Transport in bulk according to Annex II MARPOL73/78 and the IBC Code	l of Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.
· UN "Model Regulation":	Void

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

· Section 355 (extremely hazardous substances):

None of the ingredients is listed.

· Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65

None of the ingredients is listed.

(Contd. on page 7)

US

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Stop solution 2

Chemic	als known to cause cancer:
None of	f the ingredients is listed.
Chemic	als known to cause reproductive toxicity for females:
None of	f the ingredients is listed.
Chemic	als known to cause reproductive toxicity for males:
	f the ingredients is listed.
Chemic	als known to cause developmental toxicity:
	f the ingredients is listed.
Cancer	ogenity categories
	Invironmental Protection Agency)
	f the ingredients is listed.
	hreshold Limit Value established by ACGIH)
	f the ingredients is listed.
	-
	-Ca (National Institute for Occupational Safety and Health)
•	f the ingredients is listed. bel elements
Hazard	oduct is classified and labeled according to the Globally Harmonized System (GHS). pictograms GHS05, GHS07, GHS08 w ord Warning
-	-determining components of labeling:
	lammonium chloride
	statements
May be	corrosive to metals.
Causes	skin irritation.
	serious eye irritation.
	use an allergic skin reaction.
	ed of causing cancer.
	tionary statements
	special instructions before use. rotective gloves/protective clothing/eye protection/face protection.
	SKIN: Wash with plenty of soap and water.
	es: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to d
	ie rinsing.
	rritation or rash occurs: Get medical advice/attention.
•	ritation persists: Get medical advice/attention.
Take of	f contaminated clothing and wash it before reuse.
	ocked up.
	corrosive resistant container with a resistant inner liner.
	e of contents/container in accordance with local/regional/national/international regulations.
	al safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: Product safety department

- Date of preparation / last revision 05/03/2018 / 5
- Abbreviations and acronyms: RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) ICAO: International Civil Aviation Organisation PBT: persistent, bioaccumulative, toxic substance (REACH) (Contd. or page 8)

[•] Contact: +49 6221 13840-35

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Stop solution 2

	(Contd. of page 7)
vPvB: very persistent, very bioaccumulative substance (REACH)	
REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals	
CLP: Regulation on classification, labelling and packaging of substances and mixtures	
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerni	ing the International
Carriage of Dangerous Goods by Road)	
IMDG: International Maritime Code for Dangerous Goods	
DOT: US Department of Transportation	
IATA: International Air Transport Association	
ACGIH: American Conference of Governmental Industrial Hygienists	
EINECS: European Inventory of Existing Commercial Chemical Substances	
ELINCS: European List of Notified Chemical Substances	
CAS: Chemical Abstracts Service (division of the American Chemical Society)	
NFPA: National Fire Protection Association (USA)	
HMIS: Hazardous Materials Identification System (USA)	
LC50: Lethal concentration, 50 percent	
LD50: Lethal dose, 50 percent	
PBT: Persistent, Bioaccumulative and Toxic	
vPvB: very Persistent and very Bioaccumulative	
NIOSH: National Institute for Occupational Safety	
OSHA: Occupational Safety & Health	
TLV: Threshold Limit Value	
PEL: Permissible Exposure Limit	
REL: Recommended Exposure Limit	
Met. Corr.1: Corrosive to metals – Category 1	
Skin Irrit. 2: Skin corrosion/irritation – Category 2	
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A	
Skin Sens. 1: Skin sensitisation – Category 1	
Carc. 2: Carcinogenicity – Category 2	
$\cdot *$ Data compared to the previous version altered.	

Printing date 05/03/2018

Reviewed on 04/13/2016

Identification	
Product identifier	CEDI //
Trade name: Lysis Buffer	serving scientists
Article number: ICPL.g Application of the substance / the mixture Laboratory cl	nemicals
Details of the supplier of the safety data sheet Manufacturer/Supplier: SERVA Electrophoresis GmbH Carl-Benz-Str. 7 D-69115 Heidelberg Tel.: +49 6221 13840-0 FAX: +49 6221 13840-10 msds.info@serva.de	Gmbh
Information department: Product Safety department Tel. Emergency telephone number: Medical Emergency Information in case of poisoning: Poison Information Center Mainz - Phone: +49 (0) 6131 (advisory service in German or English language)	S
V	
Hazard(s) identification	
Acute Tox. 4 H302 Harmful if swallowed. Skin Irrit. 2 H315 Causes skin irritation. Eye Irrit. 2A H319 Causes serious eye irritation.	
Label elements GHS label elements The product is classified and labeled according to the Gle Hazard pictograms GHS07 Signal word Warning	obally Harmonized System (GHS).
Hazard-determining components of labeling: guanadine hydrochloride Hazard statements Harmful if swallowed.	
Causes skin irritation. Causes serious eye irritation. Precautionary statements	
Causes serious eye irritation. Precautionary statements Wear protective gloves/protective clothing/eye protection IF SWALLOWED: Call a POISON CENTER/doctor if you IF ON SKIN: Wash with plenty of soap and water.	i feel unwell.
Causes serious eye irritation. Precautionary statements Wear protective gloves/protective clothing/eye protection IF SWALLOWED: Call a POISON CENTER/doctor if you	i feel unwell.

(Contd. of page 1)

60-80%

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Lysis Buffer

· Classification system:

• NFPA ratings (scale 0 - 4)

1 0 Health = 1Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH1Health = 1FIRE0Fire = 0REACTIVITY0Reactivity = 0

· Other hazards

· Results of PBT and vPvB assessment

· **PBT**: PBT - assessment not available.

· **vPvB**: vPvB - assessment not available.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

 $\cdot \textit{Description: Mixture of the substances listed below with nonhazardous additions.}$

· Dangerous components:

50-01-1 guanadine hydrochloride

• Additional information: For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

· Description of first aid measures

• General information: Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- · After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.

• After eye contact:

Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.

• After swallowing: Wash out mouth. Seek medical advice if discomfort occurs.

- Information for doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- *Indication of any immediate medical attention and special treatment needed No further relevant information available.*

5 Fire-fighting measures

- · Extinguishing media
- Suitable extinguishing agents:

 CO_2 , extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam. • Special hazards arising from the substance or mixture No further relevant information available.

- · Advice for firefighters
- · Protective equipment: Wear self-contained respiratory protective device.

(Contd. on page 3)

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Lysis Buffer

(Contd. of page 2)

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures Wear protective clothing. Ensure adequate ventilation Avoid contact with the eyes and skin.
- Environmental precautions: Do not allow to enter sewers/ surface or ground water. Dilute with plenty of water.
- Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to item 13.
- Reference to other sections
 See Section 7 for information on safe handling.
 See Section 8 for information on personal protection equipment.
 See Section 13 for disposal information.

7 Handling and storage

- · Handling:
- · Precautions for safe handling Ensure good ventilation/exhaustion at the workplace.
- Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: Store at -15 to -25 °C
- · Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed and store in dry conditions.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

• Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls

- · Personal protective equipment:
- General protective and hygienic measures: Keep away from foodstuffs, beverages and feed.
 Store protective clothing separately.
 Immediately remove all soiled and contaminated clothing.
 Wash hands before breaks and at the end of work.
 Avoid contact with the eyes and skin.
- **Breathing equipment:** Short term filter device: Filter P2
- Protection of hands:

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

(Contd. on page 4)

(Contd. of page 3)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Lysis Buffer

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:

Natural rubber, NR

Nitrile rubber, NBR

- Eye protection: Safety glasses
- · Body protection: Protective work clothing

9 Physical and chemical properties

Information on basis abusis al	nud abamiagl manantico
 Information on basic physical of General Information 	ina cnemicai properties
· Appearance:	
Form:	Solution
Color:	Colorless
· Odor:	Odorless
· pH-value at 20 °C (68 °F):	8.5
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· Flash point:	Not applicable.
· Auto igniting:	Product is not selfigniting.
• Danger of explosion:	Product does not present an explosion hazard.
· Density:	Not determined.
· Solubility in / Miscibility with	
Water:	Fully miscible.
· Solvent content:	
Organic solvents:	0.0 %
• Other information	No further relevant information available.

10 Stability and reactivity

• *Reactivity* No further relevant information available.

- · Chemical stability
- · Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No further relevant informations available.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No further relevant informations available.

(Contd. on page 5)

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Lysis Buffer

(Contd. of page 4)

· Acute to: · LD/LC5(tion on toxicological effects xicity: 0 values that are relevant for classification:
) values that are relevant for classification.
50-01-1 g	, values that are retevant for classification.
	guanadine hydrochloride
Oral	LD50 475 mg/kg (rat)
Dermal	LD50 > 2000 mg/kg (rabbit)
	irritant effect:
	cin: Irritant to skin and mucous membranes.
	e: Irritating effect.
	t ion: No sensitizing effects known. al toxicological information:
	duct shows the following dangers according to internally approved calculation methods f
preparat	
Harmful	
Irritant	
· Carcinog	genic categories
· IARC (In	nternational Agency for Research on Cancer)
None of t	the ingredients is listed.
· NTP (Na	utional Toxicology Program)
None of t	the ingredients is listed.
· OSHA-C	a (Occupational Safety & Health Administration)
None of t	the ingredients is listed.
Ecologi	cal information
• Toxicity	
	toxicity: No further relevant information available.
	ace and degradability No further relevant information available.
• Toxicity • Aquatic 1	toxicity: No further relevant information available.
Behavior	r in environmental systems:

- Additional ecological information:
- General notes: Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow product to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.

×

- **vPvB:** Not applicable.
- \cdot Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Disposal must be made according to official regulations.

(Contd. on page 6)

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Lysis Buffer

(Contd. of page 5)

· Uncleaned packagings:

· Recommendation:

Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

• Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

14 Transport information	
· UN-Number · DOT, ADR, ADN, IMDG, IATA	Void
· UN proper shipping name · DOT, ADR, ADN, IMDG, IATA	Void
· Transport hazard class(es)	
· DOT, ADN · Class	Void
· ADR, IMDG, IATA · Class · Label	Void -
· Packing group · DOT, ADR, IMDG, IATA	Void
· Environmental hazards: · Marine pollutant:	Not applicable. No
· Special precautions for user	Not applicable.
• Transport in bulk according to Annex I MARPOL73/78 and the IBC Code	II of Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.
· UN ''Model Regulation'':	Void

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

· Section 355 (extremely hazardous substances):

None of the ingredients is listed.

· Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65

None of the ingredients is listed.

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

(Contd. on page 7)

US

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Lysis Buffer

(Contd. of page 6)

•	Chemicals	known to	cause deve	lopmental	toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

- Hazard pictograms GHS07
- · Signal word Warning
- *Hazard-determining components of labeling:* guanadine hydrochloride
- Hazard statements Harmful if swallowed. Causes skin irritation. Causes serious eye irritation.
- · Precautionary statements

Wear protective gloves/protective clothing/eye protection/face protection.

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

IF ON SKIN: Wash with plenty of soap and water.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: Product safety department

- · Date of preparation / last revision 05/03/2018 / 5
- · Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) ICAO: International Civil Aviation Organisation

PBT: persistent, bioaccumulative, toxic substance (REACH)

- vPvB: very persistent, very bioaccumulative substance (REACH)
- REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
- CLP: Regulation on classification, labelling and packaging of substances and mixtures
- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International
- Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods
- IMDG: International Maritime Code for Dangerous Good DOT: US Department of Transportation
- IATA: International Air Transport Association
- ACGIH: American Conference of Governmental Industrial Hygienists
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA)
- HMIS: Hazardous Materials Identification System (USA)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent

[·] Contact: +49 6221 13840-35

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Lysis Buffer

PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit Acute Tox. 4: Acute toxicity – Category 4 Skin Irrit. 2: Skin corrosion/irritation – Category 2 Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A • * Data compared to the previous version altered. (Contd. of page 7)

Printing date 05/03/2018

Reviewed on 07/27/2010

Product identifier	CEDI/V
Trade name: Solution Buffer	serving scientists
Article number: ICPL.h Application of the substance / the mixture Laborator	y chemicals
Details of the supplier of the safety data sheet Manufacturer/Supplier: SERVA Electrophoresis GmbH Carl-Benz-Str. 7 D-69115 Heidelberg Tel.: +49 6221 13840-0 FAX: +49 6221 13840-10 msds.info@serva.de	Gmbh
Information department: Product Safety department? Emergency telephone number: Medical Emergency Information in case of poisoning: Poison Information Center Mainz - Phone: +49 (0) 61 (advisory service in German or English language)	S
Hazard(s) identification	
The product is not classified according to the Globally Label elements GHS label elements Void Hazard pictograms Void Signal word Void Hazard statements Void Classification system: NFPA ratings (scale 0 - 4)	y Harmonized System (GHS).
$\begin{array}{c} \textbf{Health} = 0\\ Fire = 0\\ Reactivity = 0 \end{array}$	
HMIS-ratings (scale $0 - 4$)HEALTH 0 Health = 0 FIRE 0 Fire = 0 REACTIVITY 0 Reactivity = 0	
Other hazards Results of PBT and vPvB assessment PBT: PBT - assessment not available. vPvB: vPvB - assessment not available.	
Composition/information on ingredients	

· Dangerous components: Void

(Contd. on page 2)

Printing date 05/03/2018

Reviewed on 07/27/2010

Trade name: Solution Buffer

(Contd. of page 1)

• Additional information: For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

- · Description of first aid measures
- · After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact:

Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.

- · After swallowing: Wash out mouth. Seek medical advice if discomfort occurs.
- Information for doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- Suitable extinguishing agents:

 CO_2 , extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam. • Special hazards arising from the substance or mixture No further relevant information available.

- · Advice for firefighters
- · Protective equipment: Wear self-contained respiratory protective device.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures Wear protective clothing. Ensure adequate ventilation Avoid contact with the eyes and skin.
Environmental precautions: Do not allow to enter sewers/ surface or ground water.

Dilute with plenty of water. • Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to item 13.

Reference to other sections
 See Section 7 for information on safe handling.
 See Section 8 for information on personal protection equipment.
 See Section 13 for disposal information.

7 Handling and storage

- · Handling:
- Precautions for safe handling Ensure good ventilation/exhaustion at the workplace.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: Store at -15 to -25 °C
- · Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed and store in dry conditions.

(Contd. on page 3)

Printing date 05/03/2018

Reviewed on 07/27/2010

Trade name: Solution Buffer

(Contd. of page 2)

• Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

• Additional information about design of technical systems: No further data; see item 7.

- · Control parameters
- · Components with limit values that require monitoring at the workplace:

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

- Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- General protective and hygienic measures: Keep away from foodstuffs, beverages and feed. Store protective clothing separately. Immediately remove all soiled and contaminated clothing.
- Avoid contact with the eyes and skin.

Wash hands before breaks and at the end of work.

- · Breathing equipment: Suitable respiratory protective device recommended.
- · Protection of hands:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

 \cdot For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:

Natural rubber, NR

Nitrile rubber, NBR

- Eye protection: Safety glasses
- · Body protection: Protective work clothing

9 Physical and chemical properties

- · Information on basic physical and chemical properties
- General Information • Appearance:
- Form:SolutionColor:Colorless• Odor:Odorless

• *pH-value at 20* •*C* (68 •*F*): 8.5

 Change in condition Melting point/Melting range: Undetermined.

Boiling point/Boiling range: Undetermined.

(Contd. on page 4)

Printing date 05/03/2018

Reviewed on 07/27/2010

Trade name: Solution Buffer

	(Contd. of page 3)
· Flash point:	Not applicable.
· Auto igniting:	Product is not selfigniting.
• Danger of explosion:	Product does not present an explosion hazard.
· Density:	Not determined.
· Solubility in / Miscibility with Water:	Fully miscible.
 Solvent content: Organic solvents: Other information 	0.0 % No further relevant information available.

10 Stability and reactivity

· Reactivity No further relevant information available.

· Chemical stability

- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No further relevant informations available.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No further relevant informations available.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- · Primary irritant effect:
- on the skin: No irritant effect.
- on the eye: No irritating effect.
- Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- *Mobility in soil* No further relevant information available.

(Contd. on page 5)

(Contd. of page 4)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 07/27/2010

Trade name: Solution Buffer

- · Additional ecological information:
- \cdot General notes: Generally not hazardous for water
- Results of PBT and vPvB assessment
- *PBT*: Not applicable.
- **vPvB:** Not applicable.
- \cdot Other adverse effects No further relevant information available.

13 Disposal considerations

· Waste treatment methods

· Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Disposal must be made according to official regulations.

- · Uncleaned packagings:
- · Recommendation:

Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

• Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

14 Transport information	
· UN-Number · DOT, ADR, ADN, IMDG, IATA	Void
· UN proper shipping name · DOT, ADR, ADN, IMDG, IATA	Void
· Transport hazard class(es)	
· DOT, ADN · Class	Void
· ADR, IMDG, IATA · Class · Label	Void -
· Packing group · DOT, ADR, IMDG, IATA	Void
• Environmental hazards: • Marine pollutant:	Not applicable. No
· Special precautions for user	Not applicable.
• Transport in bulk according to Annex II o MARPOL73/78 and the IBC Code	f Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.
· UN "Model Regulation":	Void

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

- · Section 355 (extremely hazardous substances):
- None of the ingredients is listed.

(Contd. on page 6)

US

US

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 07/27/2010

Trade name: Solution Buffer

	(Contd. of page
Section 313 (Specific toxic chemical listings):	
None of the ingredients is listed.	
TSCA (Toxic Substances Control Act):	
All ingredients are listed.	
Proposition 65	
None of the ingredients is listed.	
Chemicals known to cause cancer:	
None of the ingredients is listed.	
Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
Cancerogenity categories	
EPA (Environmental Protection Agency)	
None of the ingredients is listed.	
TLV (Threshold Limit Value established by ACGIH)	
None of the ingredients is listed.	
NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the ingredients is listed.	
GHS label elements Void	
Hazard pictograms Void	
Signal word Void Hazard statements Void	
Chemical safety assessment: A Chemical Safety Assessment has not been a	carried out

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- · Department issuing SDS: Product safety department
- Contact: +49 6221 13840-35
- Date of preparation / last revision 05/03/2018 / 5

· Abbreviations and acronyms: RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) ICAO: International Civil Aviation Organisation PBT: persistent, bioaccumulative, toxic substance (REACH) vPvB: very persistent, very bioaccumulative substance (REACH) REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals CLP: Regulation on classification, labelling and packaging of substances and mixtures ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association ACGIH: American Conference of Governmental Industrial Hygienists EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative (Contd. on page 7)

Printing date 05/03/2018

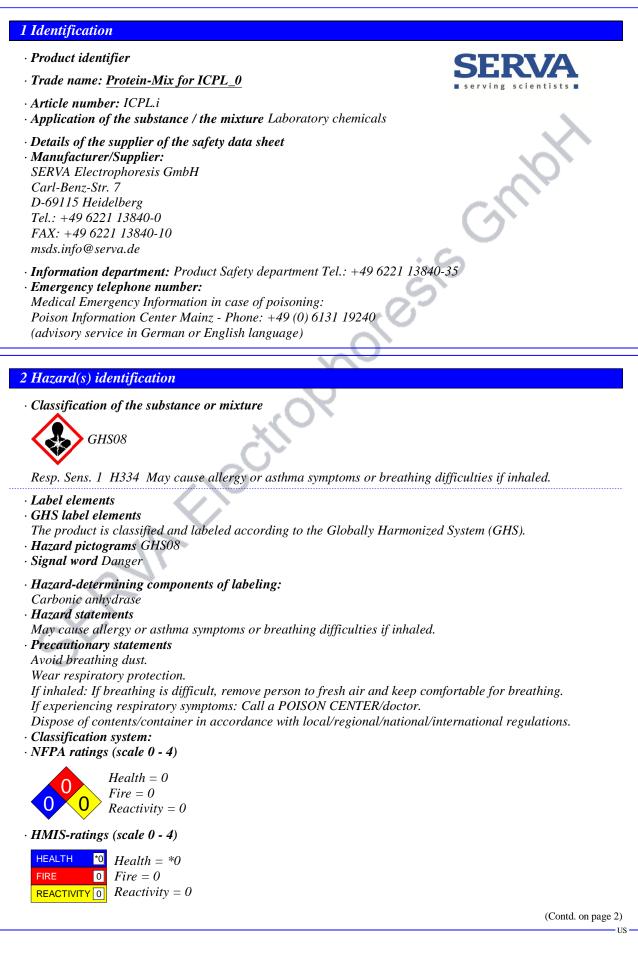
Reviewed on 07/27/2010

Trade name: Solution Buffer

NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit • *** Data compared to the previous version altered.** (Contd. of page 6)

Printing date 05/03/2018

Reviewed on 04/13/2016



(Contd. of page 1)

15-30%

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_0

- Other hazards
- · Results of PBT and vPvB assessment
- **PBT:** PBT assessment not available.
- **vPvB**: vPvB assessment not available.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

- · Description: Mixture of the substances listed below with nonhazardous additions.
- · Dangerous components:
- 9001-03-0 Carbonic anhydrase
- · Additional information: For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

- · Description of first aid measures
- · After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- After eye contact:
- Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.
- After swallowing:
- Wash out mouth. Drink plenty of water and supply fresh air. Seek medical advice if discomfort occurs. Information for doctor:
- Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- Suitable extinguishing agents:
- CO₂ extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- Special hazards arising from the substance or mixture No further relevant information available.
- Advice for firefighters
- · Protective equipment: Wear self-contained respiratory protective device.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures Wear protective clothing.
Ensure adequate ventilation Do not inhale dusts.
Avoid contact with the eyes and skin.
Environmental precautions: Do not allow to enter sewers/ surface or ground water. Dilute with plenty of water.
Methods and material for containment and cleaning up: Pick up mechanically.
Dispose contaminated material as waste according to item 13.
Reference to other sections See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment.

(Contd. on page 3)

(Contd. of page 2)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_0

See Section 13 for disposal information.

7 Handling and storage

- · Handling:
- · Precautions for safe handling
- No special precautions are necessary if used correctly. Ensure good ventilation/exhaustion at the workplace. Prevent formation of dust.
- Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: Store at -15 to -25 °C
- Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed and store in dry conditions.
- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- General protective and hygienic measures:
- The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Short term filter device: Filter P2
- · Protection of hands:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:

Natural rubber, NR Nitrile rubber, NBR • **Eye protection:** Safety glasses

(Contd. on page 4)

(Contd. of page 3)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_0

· Body protection: Protective work clothing

Physical and chemical prope	rties
· Information on basic physical of	and chemical properties
· General Information	
· Appearance:	1 1.1.
Form:	lyophilisate
Color:	Whitish
· Odor:	Odorless
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· Flash point:	Not applicable.
Auto igniting:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.
Density:	Not determined.
Solubility in / Miscibility with	
Water:	Easily soluble.
Solvent content:	
Organic solvents:	0.0 %
• Other information	No further relevant information available.

10 Stability and reactivity

- *Reactivity* No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- Possibility of hazardous reactions No further relevant informations available.
- Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No further relevant informations available.

11 Toxicological information

- · Information on toxicological effects
- Acute toxicity:
- · Primary irritant effect:
- on the skin: No irritant effect.
- on the eye: No irritating effect.
- \cdot Sensitization: Sensitization possible through inhalation.
- Additional toxicological information: The product shows the following dangers according to internally approved calculation methods for preparations: Harmful
- · Carcinogenic categories
- · IARC (International Agency for Research on Cancer)
- None of the ingredients is listed.

(Contd. on page 5)

US

(Contd. of page 4)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_0

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

· Toxicity

- Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- Additional ecological information:
- General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow product to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- \cdot Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Disposal must be made according to official regulations.

- · Uncleaned packagings:
- · Recommendation:

Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

UN-Number		
DOT, ADR, ADN, IMDG, IATA	Void	
UN proper shipping name		
DOT, ADR, ADN, IMDG, IATA	Void	
Transport hazard class(es)		
DOT, ADN		
Class	Void	
ADR, IMDG, IATA		
Class	Void	
Label	-	
Packing group		
DOT, ADR, IMDG, IATA	Void	
Environmental hazards:	Not applicable.	
Marine pollutant:	No	

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_0

	(Contd. of page 5)
· Special precautions for user	Not applicable.
• Transport in bulk according to Annex II oj MARPOL73/78 and the IBC Code	f Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.
· UN "Model Regulation":	Void

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

• Section 355 (extremely hazardous substances):

None of the ingredients is listed.

• Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

· TSCA (Toxic Substances Control Act):

9006-59-1 Ovalbumin

9048-46-8 Albumins, blood serum

· Proposition 65

None of the ingredients is listed.

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

• Hazard pictograms GHS08

• Signal word Danger

- \cdot Hazard-determining components of labeling:
- Carbonic anhydrase
- · Hazard statements

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

· Precautionary statements

Avoid breathing dust.

Wear respiratory protection.

If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 7)

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

Printing date 05/03/2018

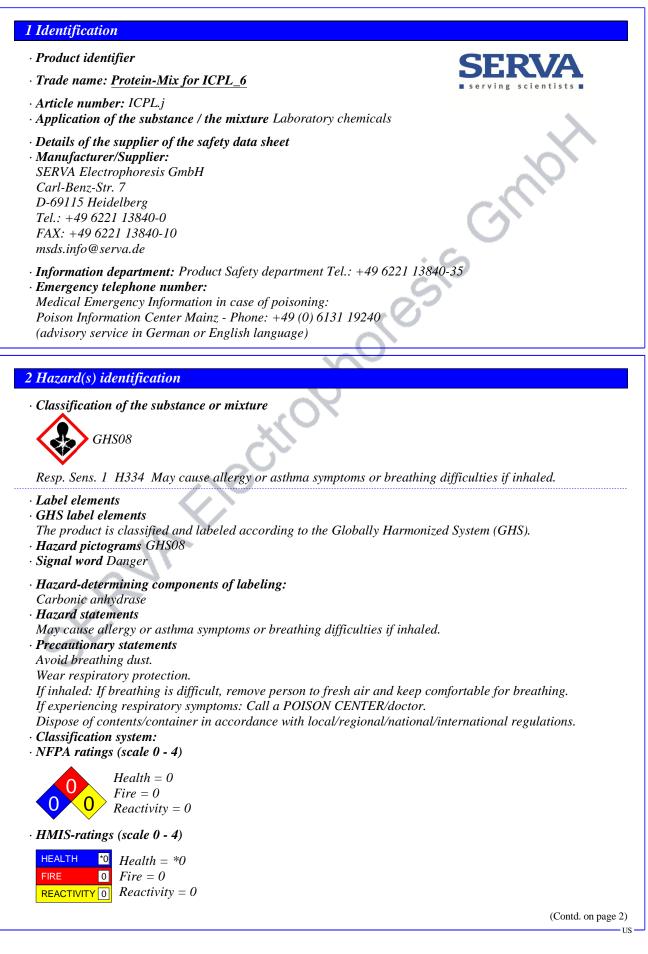
Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_0

(Contd. of page 6)

(Other information
	This information is based on our present knowledge. However, this shall not constitute a guarantee for a precific product features and shall not establish a legally valid contractual relationship.
1	Department issuing SDS: Product safety department
(Contact: +49 6221 13840-35
1	Date of preparation / last revision 05/03/2018 / 4
	Abbreviations and acronyms:
F I	ADD eviations and acronyms. AD: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning niernational Transport of Dangerous Goods by Rail) CAO: International Civil Aviation Organisation
	PBT: persistent, bioaccumulative, toxic substance (REACH)
v	PvB: very persistent, very bioaccumulative substance (REACH)
ŀ	EACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
	CLP: Regulation on classification, labelling and packaging of substances and mixtures
	DR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the Internatio
	Carriage of Dangerous Goods by Road)
	MDG: International Maritime Code for Dangerous Goods
	DOT: US Department of Transportation
	ATA: International Air Transport Association
	ACGIH: American Conference of Governmental Industrial Hygienists EINECS: European Inventory of Existing Commercial Chemical Substances
	ELINCE: European List of Notified Chemical Substances
	CAS: Chemical Abstracts Service (division of the American Chemical Society)
	VFPA: National Fire Protection Association (USA)
	IMIS: Hazardous Materials Identification System (USA)
	PBT: Persistent, Bioaccumulative and Toxic
v	PvB: very Persistent and very Bioaccumulative
ľ	NOSH: National Institute for Occupational Safety
(OSHA: Occupational Safety & Health
	'LV: Threshold Limit Value
	PEL: Permissible Exposure Limit
	REL: Recommended Exposure Limit
ŀ	Resp. Sens. 1: Respiratory sensitisation – Category 1

Printing date 05/03/2018



Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_6

- Other hazards
- · Results of PBT and vPvB assessment
- **PBT:** PBT assessment not available.
- **vPvB**: vPvB assessment not available.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

- · Description: Mixture of the substances listed below with nonhazardous additions.
- · Dangerous components:
- 9001-03-0 Carbonic anhydrase
- · Additional information: For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

- · Description of first aid measures
- After inhalation:
- Supply fresh air; consult doctor in case of complaints.
- In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact:

Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.

- · After swallowing:
- Wash out mouth. Drink plenty of water and supply fresh air. Consult doctor if you feel unwell.
- Information for doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed
- No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- Suitable extinguishing agents:
- CO2 extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- Special hazards arising from the substance or mixture No further relevant information available.
- Advice for firefighters
- · Protective equipment: Wear self-contained respiratory protective device.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures Wear protective clothing. Ensure adequate ventilation Do not inhale dusts. Avoid contact with the eyes and skin.
Environmental precautions: Do not allow to enter sewers/ surface or ground water. Dilute with plenty of water.
Methods and material for containment and cleaning up: Pick up mechanically. Dispose contaminated material as waste according to item 13.
Reference to other sections See Section 7 for information on safe handling.

(Contd. on page 3)

(Contd. of page 1)

60-80%

US

(Contd. of page 2)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_6

See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

7 Handling and storage

· Handling:

· Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of dust.

Avoid contact with eyes and skin.

- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: Store at -15 to -25 °C
- · Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed and store in dry conditions.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- Components with limit values that require monitoring at the workplace: The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Store protective clothing separately.

Immediately remove all soiled and contaminated clothing.

Avoid contact with the eyes and skin.

Wash hands before breaks and at the end of work.

• Breathing equipment:

Short term filter device: Filter P2

• Protection of hands:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 4)

[–] ÚS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_6

	(Contd. of page 3)
For the permanent contact of a maximum of 15 minutes gloves made of the following m	naterials are
suitable:	
Natural rubber, NR	

Nitrile rubber, NBR

• Eye protection: Safety glasses

· Body protection: Protective work clothing

9 Physical and chemical properties

· Information on basic physical a	and chemical properties
· General Information	
· Appearance:	
Form:	lyophilisate
Color:	Whitish
· Odor:	Odorless
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
Flash point:	Not applicable.
Auto igniting:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.
Density:	Not determined.
· Solubility in / Miscibility with	
Water:	Soluble.
Solvent content:	
Organic solvents:	0.0 %
Solids content:	100.0 %
• Other information	No further relevant information available.

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No further relevant informations available.
- Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No further relevant informations available.

11 Toxicological information

· Information on toxicological effects

• Acute toxicity:

- Primary irritant effect:
- on the skin: No irritant effect.
- \cdot on the eye: No irritating effect.
- · Sensitization: Sensitization possible through inhalation.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

 $(Contd. \ on \ page \ 5)$

(Contd. of page 4)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_6

Harmful

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

· Toxicity

- Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- Additional ecological information:
- · General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow product to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- *PBT:* Not applicable.
- **vPvB:** Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Disposal must be made according to official regulations.

- · Uncleaned packagings:
- · Recommendation:

Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

• Recommended cleansing agent: Water, if necessary with cleansing agents.

· UN-Number		
· DOT, ADR, ADN, IMDG, IATA	Void	
· UN proper shipping name		
· DOT, ADR, ADN, IMDG, IATA	Void	
· Transport hazard class(es)		
· DOT, ADN		
· Class	Void	
· ADR, IMDG, IATA		
· Class	Void	

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_6

	(Contd. of page 5)
· Label	-
· Packing group · DOT, ADR, IMDG, IATA	Void
• Environmental hazards: • Marine pollutant:	Not applicable. No
· Special precautions for user	Not applicable.
• Transport in bulk according to Annex II MARPOL73/78 and the IBC Code	of Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.
· UN "Model Regulation":	Void

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

· Section 355 (extremely hazardous substances): None of the ingredients is listed. · Section 313 (Specific toxic chemical listings): None of the ingredients is listed. · TSCA (Toxic Substances Control Act): 9048-46-8 Albumins, blood serum 9006-59-1 Ovalbumin · Proposition 65 None of the ingredients is listed. · Chemicals known to cause cancer: None of the ingredients is listed. · Chemicals known to cause reproductive toxicity for females: None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

- · Hazard pictograms GHS08
- · Signal word Danger
- · Hazard-determining components of labeling: Carbonic anhydrase

· Hazard statements May cause allergy or asthma symptoms or breathing difficulties if inhaled.

(Contd. of page 6)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_6

· Precautionary statements

Avoid breathing dust.

Wear respiratory protection.

If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Dispose of contents/container in accordance with local/regional/national/international regulations.

• Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: Product safety department

- · Contact: +49 6221 13840-35
- · Date of preparation / last revision 05/03/2018 / 4
- · Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

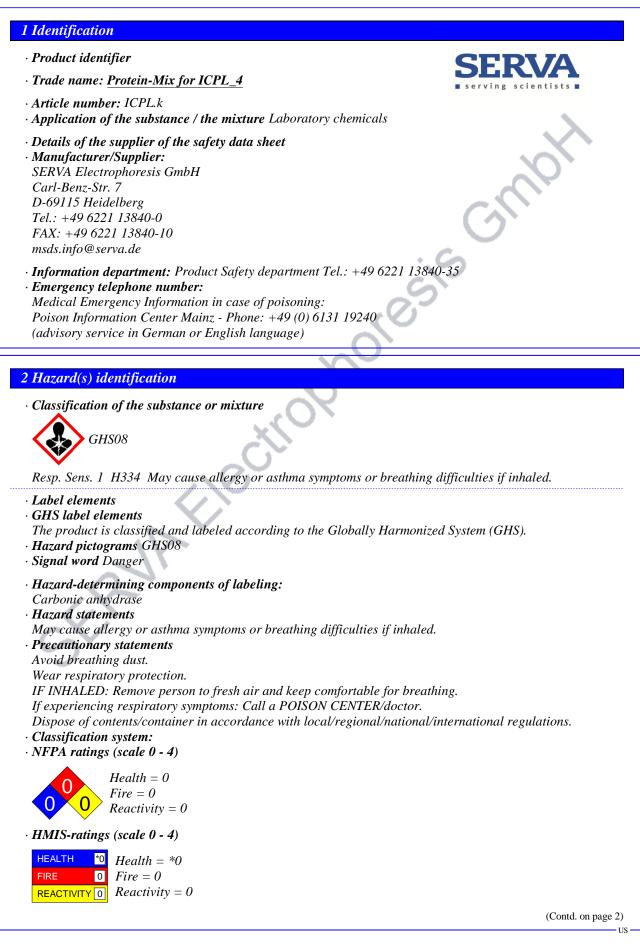
PBT: persistent, bioaccumulative, toxic substance (REACH)

vPvB: very persistent, very bioaccumulative substance (REACH) REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

- *CLP: Regulation on classification, labelling and packaging of substances and mixtures*
- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association
- ACGIH: American Conference of Governmental Industrial Hygienists
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety
- OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit
- REL: Recommended Exposure Limit
- Resp. Sens. 1: Respiratory sensitisation Category 1
- * Data compared to the previous version altered.

Printing date 05/03/2018

Reviewed on 04/13/2016



Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_4

- Other hazards
- · Results of PBT and vPvB assessment
- **PBT:** PBT assessment not available.
- **vPvB**: vPvB assessment not available.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

- · Description: Mixture of the substances listed below with nonhazardous additions.
- · Dangerous components:
- 9001-03-0 Carbonic anhydrase
- · Additional information: For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

- · Description of first aid measures
- · After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- After eye contact:
- Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.
- After swallowing:
- Wash out mouth. Drink plenty of water and supply fresh air. Consult doctor if you feel unwell.
- Information for doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- *Indication of any immediate medical attention and special treatment needed No further relevant information available.*

5 Fire-fighting measures

- · Extinguishing media
- Suitable extinguishing agents:
- CO2 extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- Special hazards arising from the substance or mixture No further relevant information available.
- Advice for firefighters
- · Protective equipment: Wear self-contained respiratory protective device.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures Wear protective clothing.
Ensure adequate ventilation Do not inhale dusts.
Avoid contact with the eyes and skin.
Environmental precautions: Do not allow to enter sewers/ surface or ground water. Dilute with plenty of water.
Methods and material for containment and cleaning up: Pick up mechanically.
Dispose contaminated material as waste according to item 13.
Reference to other sections See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment.

(Contd. on page 3)

30-50%

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Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_4

See Section 13 for disposal information.

(Contd. of page 2)

7 Handling and storage

- · Handling:
- **Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace. Prevent formation of dust.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: Store at -15 to -25 °C
- · Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed and store in dry conditions.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

• Additional information about design of technical systems: No further data; see item 7.

- · Control parameters
- · Components with limit values that require monitoring at the workplace:

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

• Additional information: The lists that were valid during the creation were used as basis.

- · Exposure controls
- · Personal protective equipment:
- General protective and hygienic measures: Keep away from foodstuffs, beverages and feed. Store protective clothing separately. Immediately remove all soiled and contaminated clothing. Avoid contact with the eyes and skin. Do not inhale dust / smoke / mist. Wash hands before breaks and at the end of work.
- · Breathing equipment:

Suitable respiratory protective device recommended.

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· Protection of hands:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 4)

⁻ US

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_4

(1	Contd. of page 3)
• For the permanent contact of a maximum of 15 minutes gloves made of the following m	<i>aterials</i> are
suitable:	
Natural rubber, NR	

Nitrile rubber, NBR

• Eye protection: Safety glasses

• Body protection: Protective work clothing

9 Physical and chemical properties

· Information on basic physical of	and chamical properties
· Information on basic physical of · General Information	una chemicai properties
· Appearance:	
Form:	lyophilisate
Color:	Whitish
· Odor:	Odorless
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· Flash point:	Not applicable.
· Auto igniting:	Product is not selfigniting.
• Danger of explosion:	Product does not present an explosion hazard.
· Density:	Not determined.
· Solubility in / Miscibility with	
Water:	Soluble.
· Solvent content:	
Organic solvents:	0.0 %
Solids content:	100.0 %
• Other information	No further relevant information available.

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No further relevant informations available.
- Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No further relevant informations available.

11 Toxicological information

· Information on toxicological effects

• Acute toxicity:

- Primary irritant effect:
- on the skin: No irritant effect.
- on the eye: No irritating effect.
- · Sensitization: Sensitization possible through inhalation.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

 $(Contd. \ on \ page \ 5)$

US

(Contd. of page 4)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_4

Harmful

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

· Toxicity

- Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- Additional ecological information:

· General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow product to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- *PBT:* Not applicable.
- **vPvB:** Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Disposal must be made according to official regulations.

- · Uncleaned packagings:
- · Recommendation:

Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

• Recommended cleansing agent: Water, if necessary with cleansing agents.

· UN-Number		
· DOT, ADR, ADN, IMDG, IATA	Void	
· UN proper shipping name		
· DOT, ADR, ADN, IMDG, IATA	Void	
· Transport hazard class(es)		
· DOT, ADN		
· Class	Void	
· ADR, IMDG, IATA		
· Class	Void	

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_4

	(Contd. of page 5)
· Label	-
· Packing group · DOT, ADR, IMDG, IATA	Void
· Environmental hazards: · Marine pollutant:	Not applicable. No
· Special precautions for user	Not applicable.
• Transport in bulk according to Annex I MARPOL73/78 and the IBC Code	I of Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.
· UN ''Model Regulation'':	Void

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

· Section 355 (extremely hazardous substances): None of the ingredients is listed. · Section 313 (Specific toxic chemical listings): None of the ingredients is listed. · TSCA (Toxic Substances Control Act): 9048-46-8 Albumins, blood serum 9006-59-1 Ovalbumin · Proposition 65 None of the ingredients is listed. · Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

- · Hazard pictograms GHS08
- · Signal word Danger

· Hazard-determining components of labeling: Carbonic anhydrase

· Hazard statements May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: Protein-Mix for ICPL_4

· Precautionary statements

Avoid breathing dust.

Wear respiratory protection.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: Product safety department

- · Contact: +49 6221 13840-35
- · Date of preparation / last revision 05/03/2018 / 4
- · Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) ICAO: International Civil Aviation Organisation

PBT: persistent, bioaccumulative, toxic substance (REACH)

vPvB: very persistent, very bioaccumulative substance (REACH)

REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

CLP: Regulation on classification, labelling and packaging of substances and mixtures

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)

PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

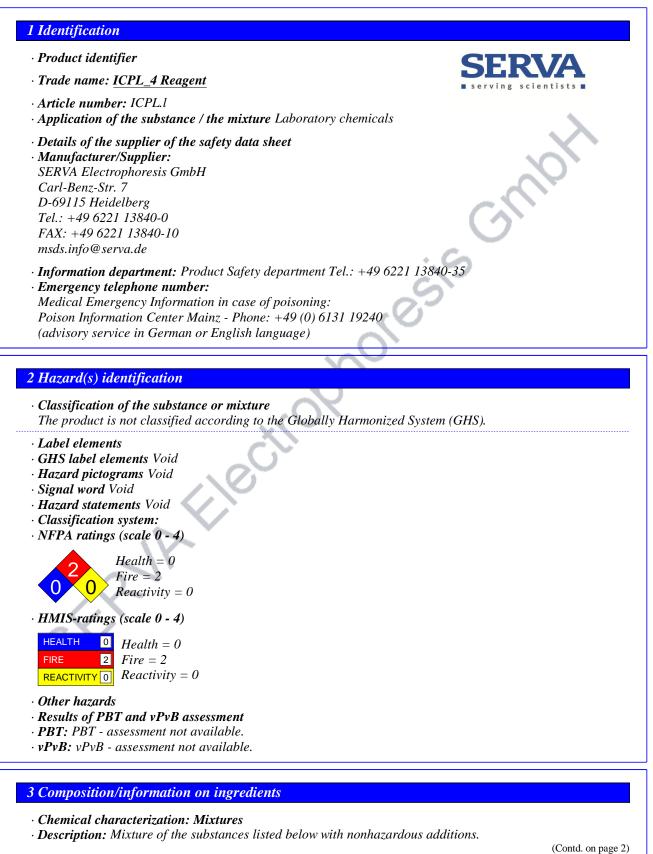
REL: Recommended Exposure Limit

Resp. Sens. 1: Respiratory sensitisation - Category 1

• * Data compared to the previous version altered.

(Contd. of page 6)

Printing date 05/03/2018



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Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: ICPL_4 Reagent

· Dangerous components:

67-68-5 dimethyl sulfoxide

80-100%

(Contd. of page 1)

4 First-aid measures

- · Description of first aid measures
- General information: No special measures required.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact:

Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.

- After swallowing: Wash out mouth. Seek medical advice if discomfort occurs.
- Information for doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- *Indication of any immediate medical attention and special treatment needed No further relevant information available.*

5 *Fire-fighting measures*

- · Extinguishing media
- Suitable extinguishing agents:
- CO_{2} extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam. • Special hazards arising from the substance or mixture
- In case of fire, the following can be released: Sulphur oxides (SOx) Carbon monoxide and carbon dioxide Formaldehyde Methyl mercaptan • Advice for firefighters
- **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures Wear protective clothing.
 Ensure adequate ventilation Avoid contact with the eyes and skin.
 Environmental precautions:
- Do not allow to enter sewers/ surface or ground water. Dilute with plenty of water.
- Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to item 13.
 Reference to other sections
- See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

7 Handling and storage

· Handling:

• Precautions for safe handling Ensure good ventilation/exhaustion at the workplace.

(Contd. on page 3)

US

(Contd. of page 2)

Safety Data Sheet acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: ICPL_4 Reagent

• Information about protection against explosions and fires: Keep ignition sources away - Do not smoke.

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: Store at -15 to -25 $^{\circ}C$
- Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Store under inert gas.
- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- 67-68-5 dimethyl sulfoxide (80-100%)

WEEL 250 ppm

• Additional information: The lists that were valid during the creation were used as basis.

- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures: Keep away from foodstuffs, beverages and feed. Store protective clothing separately. Immediately remove all soiled and contaminated clothing. Avoid contact with the eyes and skin.
- Wash hands before breaks and at the end of work.
- Breathing equipment: Short term filter device:
- Filter P2 · Protection of hands:
- Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:

Chloroprene rubber, CR Nitrile rubber, NBR

· Eye protection: Safety glasses

· **Body protection:** Protective work clothing

(Contd. on page 4)

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: ICPL_4 Reagent

(Contd. of page 3)

Physical and chemical proper	ties
Information on basic physical a	nd chemical properties
General Information	
Appearance:	
Form:	Solution
Color:	Colorless
Odor:	Characteristic
Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	189 °C (372 °F)
Flash point:	87 °C (189 °F)
Ignition temperature:	270 °C (518 °F)
Auto igniting:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	1.8 Vol %
Upper:	28.5 Vol %
Vapor pressure at 20 °C (68 °F).	: 2.5 hPa (2 mm Hg)
Density:	Not determined.
Solubility in / Miscibility with	
Water:	Fully miscible.
Solvent content:	
Organic solvents:	90.0 %
VOC content:	90.0 %
Other information	The physico-chemical data correspond to pure DMSO.

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No further relevant informations available.
- Conditions to avoid high ttemperatures exposure to the light
 Incompatible materials: No further relevant information available. Avoid contact with: Oxidizers Acids Halides of organic and inorganic acids Methyl bromide, sodium hydride Zinc and steel (in the presence of water)
 Hazardous decomposition products: In case of fire: See Section 5

(Contd. on page 5)

US

Printing date 05/03/2018

Reviewed on 04/13/2016

Trade name: ICPL_4 Reagent

(Contd. of page 4)

11 Toxicological information

- · Information on toxicological effects
- Acute toxicity:
- Primary irritant effect:
- on the skin: No irritant effect.
- on the eye: No irritating effect.
- Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

- · Carcinogenic categories
- · IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Other information: The product is easily biodegradable.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- Additional ecological information:

• General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow product to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation: Disposal must be made according to official regulations.
- · Uncleaned packagings:
- · Recommendation:

Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

· Recommended cleansing agent: Water, if necessary with cleansing agents.

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UN-Number DOT, ADR, ADN, IMDG, IATA	Void
UN proper shipping name DOT, ADR, ADN, IMDG, IATA	Void
Transport hazard class(es)	
DOT, ADN	
Class	Void
ADR, IMDG, IATA	
Class	Void
Label	-
Packing group	
DOT, ADR, IMDG, IATA	Void
Environmental hazards:	Not applicable.
Marine pollutant:	No
Special precautions for user	Not applicable.
Transport in bulk according to Annex 1	II of
MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	Not dangerous according to the above specifications.
UN "Model Regulation":	Void

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

· Section 355 (extremely hazardous substances):

None of the ingredients is listed.

· Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65

None of the ingredients is listed.

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

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US

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• TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements Void

Hazard pictograms Void

· Signal word Void

Hazard statements Void

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: Product safety department

· Contact: +49 6221 13840-35

· Date of preparation / last revision 05/03/2018 / 4

· Abbreviations and acronyms: RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) ICAO: International Civil Aviation Organisation PBT: persistent, bioaccumulative, toxic substance (REACH) vPvB: very persistent, very bioaccumulative substance (REACH) REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals CLP: Regulation on classification, labelling and packaging of substances and mixtures ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association ACGIH: American Conference of Governmental Industrial Hygienists EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU) PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit * Data compared to the previous version altered.