SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

	Revision Date 23.08.2013	Version 1.1
SECTION 1. Identification of the su 1.1 Product identifier	bstance/mixture and of the compan	y/undertaking
Catalogue No.	480949	
Product name	PAB solution for sanitization of Pro affinity chromatography media	oSep® and Eshmuno® Protein A
REACH Registration Number	This product is a mixture. REACH Registration Number see section 3.	
1.2 Relevant identified uses of th	e substance or mixture and uses ad	lvised against
Identified uses	Pharmaceutical production For additional information on uses portal (www.merck-chemicals.com	please refer to the Merck Chemicals).
1.3 Details of the supplier of the	safety data sheet	
Company Responsible Department	Merck KGaA * 64271 Darmstadt * EQ-RS * e-mail: prodsafe@merckg	-
1.4 Emergency telephone number	Please contact the regional comp	any representation in your country.

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture Classification (REGULATION (EC) No 1272/2008)

Corrosive to metals, Category 1, H290

For the full text of the H-Statements mentioned in this Section, see Section 16. Classification (67/548/EEC or 1999/45/EC)In accordance with EC directives or respective national laws, the product does not need to be classified nor labelled.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word Warning

Hazard statements H290 May be corrosive to metals.

> Reduced labelling (≤125 ml) Not required.

2.3 Other hazards None known.

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SECTION 3. Con	nposition/information on ir	ngredients	
Chemical na 3.1 Substance not applicab		Aqueous solution of inorganic and organic compounds.	
3.2 Mixture			
Chemical N	components (REGULATIC		
CAS-No.	Registration number	Classification	
	nol (>= 1 % - < 10 %) s not meet the criteria for PBT o 01-2119492630-38- XXXX	<i>r vPvB according to Regulation (EC) No 1907/2006, Annex XIII.</i> Acute toxicity, Category 4, H332 Acute toxicity, Category 4, H302	
phosphoric a	acid <i>(>= 1 % - < 5 %)</i>		
• •	01-2119485924-24- XXXX	Skin corrosion, Category 1B, H314 Corrosive to metals, Category 1, H290	
acetic acid (<pre>/>= 1 % - < 5 %)</pre>		
Substance doe 64-19-7	not meet the criteria for PBT o 01-2119475328-30-	r vPvB according to Regulation (EC) No 1907/2006, Annex XIII.	
	XXXX	Flammable liquid, Category 3, H226 Skin corrosion, Category 1A, H314	

For the full text of the H-Statements mentioned in this Section, see Section 16.

Hazardous components (1999/45/EC)

Chemical Name (Concentration)CAS-No.ClassificationBenzyl alcohol (>= 1 % - < 10 %)</td>100-51-6Xn, Harmful; R20/22phosphoric acid (>= 1 % - < 5 %)</td>7664-38-2C, Corrosive; R34acetic acid (>= 1 % - < 5 %)</td>64-19-7R10

64-19-7 R10 C, Corrosive; R35

For the full text of the R-phrases mentioned in this Section, see Section 16.

SECTION 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air.

After skin contact: wash off with plenty of water. Remove contaminated clothing.

After eye contact: rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist if necessary.

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

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- 4.2 Most important symptoms and effects, both acute and delayed irritant effects
- **4.3 Indication of any immediate medical attention and special treatment needed** No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Not combustible. Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

Special protective equipment for firefighters Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb[®]). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling Observe label precautions.

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Hygiene measures Change contaminated clothing. Wash hands after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers No metal containers.

Storage conditions Tightly closed.

Store at +15°C to +25°C.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL)

Benzyl alcohol (100-51-6)			
Worker DNEL, acute	Systemic effects	inhalation	450 mg/m ³
Worker DNEL, acute	Systemic effects	dermal	47 mg/kg Body weight
Worker DNEL, longterm	Systemic effects	inhalation	90 mg/m³
Worker DNEL, longterm	Systemic effects	dermal	9,5 mg/kg Body weight
Consumer DNEL, acute	Systemic effects	oral	25 mg/kg Body weight
Consumer DNEL, acute	Systemic effects	inhalation	95,5 mg/m³
Consumer DNEL, acute	Systemic effects	dermal	28,5 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	oral	5 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	inhalation	19,1 mg/m³
Consumer DNEL, longterm	Systemic effects	dermal	5,7 mg/kg Body weight
acetic acid (64-19-7)			
Worker DNEL, acute	Local effects	inhalation	25 mg/m³
Worker DNEL, longterm	Local effects	inhalation	25 mg/m³
Consumer DNEL, acute	Local effects	inhalation	25 mg/m³
Consumer DNEL, longterm	Local effects	inhalation	25 mg/m³
Predicted No Effect Concentration (PNEC)			
<i>Benzyl alcohol (10</i> PNEC Fresh water	0-51-6)	1 mg/l	

PNEC Fresh water	'i mg/i
PNEC Fresh water sediment	5,27 mg/kg
PNEC Marine water	0,1 mg/l
PNEC Marine sediment	0,527 mg/kg
PNEC Soil	0,456 mg/kg

The Safety Data Sheets for catalogue items are available at www.merck-chemicals.com

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DNEC Sources tractment plant	20 ma//	

PNEC Sewage treatment plant	39 mg/l
PNEC Aquatic intermittent release	2,3 mg/l
<i>acetic acid (64-19-7)</i> PNEC Fresh water	3,058 mg/l
PNEC Fresh water sediment	11,36 mg/kg
PNEC Marine water	0,3058 mg/l
PNEC Marine sediment	1,136 mg/kg
PNEC Aquatic intermittent release	30,58 mg/l
PNEC Sewage treatment plant	85 mg/l

8.2 Exposure controls

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection Safety glasses

Hand protection

full contact:

s

	Glove material:	Nitrile rubber
	Glove thickness:	0,11 mm
	Break through time:	> 480 min
plash contact:		
	Glove material:	Nitrile rubber
	Glove thickness:	0,11 mm
	Break through time:	> 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

This recommendation applies only to the product stated in the safety data sheet<(>,<)> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment protective clothing

Respiratory protection Not required; except in case of aerosol formation.

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Environmental exposure controls

Do not let product enter drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties Form liquid

Form	líquía
Colour	colourless
Odour	No strong odour known.
Odour Threshold	No information available.
рН	acidic
Melting point	No information available.
Boiling point	No information available.
Flash point	No information available.
Evapouration rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	No information available.
Relative vapour density	No information available.
Relative density	1,067 g/cm³
Water solubility	soluble
Partition coefficient: n- octanol/water	not applicable
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none
9.2 Other data	

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SECTION 10. Stability and reactivity

10.1 Reactivity

See section 10.3

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Violent reactions possible with:

The generally known reaction partners of water.

10.4 Conditions to avoid

no information available

10.5 Incompatible materials

Metals

10.6 Hazardous decomposition products

no information available

SECTION 11. Toxicological information

11.1 Information on toxicological effects Mixture

Acute oral toxicity Acute toxicity estimate: > 2.000 mg/kg Calculation method

Acute inhalation toxicity Acute toxicity estimate: > 20 mg/l; 4 h ; vapour Calculation method

Acute dermal toxicity This information is not available.

Skin irritation Possible damages: slight irritation

Eye irritation Possible damages: slight irritation

Sensitisation This information is not available.

Germ cell mutagenicity This information is not available.

Carcinogenicity This information is not available.

Reproductive toxicity This information is not available.

Teratogenicity This information is not available.

Specific target organ toxicity - single exposure This information is not available.

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Specific target organ toxicity - repeated exposure This information is not available.

Aspiration hazard This information is not available.

11.2 Further information

However, when the product is handled appropriately, hazardous effects are unlikely to occur. Handle in accordance with good industrial hygiene and safety practice.

Components

Benzyl alcohol

Acute oral toxicity LD50 rat: 1.230 mg/kg (IUCLID)

Acute inhalation toxicity LC50 rat: ca. 8,8 mg/l; 4 h (IUCLID)

Acute dermal toxicity LD50 rabbit: 2.000 mg/kg (RTECS)

Skin irritation rabbit Result: No irritation OECD Test Guideline 404

Eye irritation rabbit Result: slight irritation OECD Test Guideline 405

Sensitisation Maximisation Test Result: negative Method: OECD Test Guideline 406

Germ cell mutagenicity Genotoxicity in vitro Ames test Result: negative (IUCLID)

phosphoric acid Acute oral toxicity LD50 rat: 1.530 mg/kg (IUCLID) (Regulation (EC) No 1272/2008, Annex VI)

Acute inhalation toxicity LC50 rat: > 0,85 mg/l; 1 h (RTECS)

Acute dermal toxicity LD50 rabbit: 2.740 mg/kg (IUCLID)

Skin irritation rabbit Result: Causes burns. (IUCLID)

Eye irritation rabbit Result: Causes burns. (IUCLID)

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<i>Sensitisation</i> Patch test: human Result: negative (IUCLID)	
<i>Germ cell mutagenicity</i> <i>Genotoxicity in vitro</i> Ames test Result: negative (IUCLID)	
<i>acetic acid</i> <i>Acute oral toxicity</i> LD50 rat: 3.310 mg/kg (RTE	CS)
<i>Acute inhalation toxicity</i> LCLO rat: 39,95 mg/l; 4 h (RT	TECS)
LC50 rat: 11,4 mg/l; 4 h (IUC	LID)
<i>Acute dermal toxicity</i> LD50 rabbit: 1.060 mg/kg (IL	JCLID)
<i>Skin irritation</i> rabbit Result: Causes burns. (IUCLID)	
<i>Germ cell mutagenicity Genotoxicity in vitro</i> Ames test Salmonella typhimurium Result: negative (National Toxicology Program	n)
<i>Teratogenicity</i> Did not show teratogenic effe	ects in animal experiments. (IUCLID)
SECTION 12. Ecological informa	tion
Mixture	
12.1 Toxicity No information available.	
12.2 Persistence and degradat No information available.	bility
12.3 Bioaccumulative potential Partition coefficient: n-octant not applicable	
12.4 Mobility in soil	

No information available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6 Other adverse effects

Discharge into the environment must be avoided.

Components

Benzyl alcohol Toxicity to fish LC50 Lepomis macrochirus (Bluegill sunfish): 10 mg/l; 96 h (IUCLID)

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	<i>nd other aquatic invertebrates</i> iformis: 854 mg/l; 48 h (ECOTOX Database)
EC50 Daphnia magna	a (Water flea): 400 mg/l; 24 h (IUCLID)
<i>Toxicity to algae</i> IC5 Scenedesmus qu	adricauda (Green algae): 640 mg/l; 96 h (IUCLID)
<i>Toxicity to bacteria</i> EC50 Photobacterium	phosphoreum: 71,4 mg/l; 30 min (IUCLID)
<i>Biodegradability</i> 92 - 96 %; 28 d OECD Test Guideline Readily biodegradable	
<i>Biochemical Oxygen I</i> 1.550 mg/g (5 d) (Lit.)	Demand (BOD)
<i>Theoretical oxygen de</i> 2.515 mg/g (IUCLID)	emand (ThOD)
<i>Ratio BOD/ThBOD</i> BOD5 62 % (Lit.)	
<i>Ratio COD/ThBOD</i> 96 % (Lit.)	
	neet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.
<i>phosphoric acid</i> <i>Toxicity to fish</i> LC50 Gambusia affini	s (Mosquito fish): 138 mg/l; 96 h (External MSDS)
<i>Toxicity to bacteria</i> EC50 activated sludge	e: 270 mg/l(IUCLID)
Biodegradability	
Does not cause biolog	gical oxygen deficit.
<i>acetic acid</i> <i>Toxicity to fish</i> LC50 Lepomis macro	chirus (Bluegill sunfish): 75 mg/l; 96 h (Lit.)
	<i>nd other aquatic invertebrates</i> ng/l; 72 h neutral (maximum permissible toxic concentration) (Lit.)
EC50 Daphnia magna	a (Water flea): 47 mg/l; 24 h (Lit.)
<i>Toxicity to algae</i> IC5 Scenedesmus qu	adricauda (Green algae): 4.000 mg/l; 16 h (maximum permissible toxic concentration) (Lit.)
<i>Toxicity to bacteria</i> EC5 Pseudomonas pr	utida: 2.850 mg/l; 16 h neutral (maximum permissible toxic concentration) (Lit.)
microtox test EC50 Pł	notobacterium phosphoreum: 11 mg/l; 15 min (IUCLID)

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Biodegradability 99 %; 30 d OECD Test Guideline 301D (HSDB) Readily biodegradable.

95 %; 5 d OECD Test Guideline 302B Readily eliminated from water

Biochemical Oxygen Demand (BOD) 880 mg/g (5 d) (Lit.)

Ratio BOD/ThBOD BOD5 76 % (IUCLID)

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

SECTION 13. Disposal considerations

Waste treatment methods

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)	
14.1 UN number	UN 1805
14.2 Proper shipping name	PHOSPHORIC ACID, SOLUTION
14.3 Class	8
14.4 Packing group	111
14.5 Environmentally hazardous	
14.6 Special precautions for	yes
user	
Tunnel restriction code	E
Inland waterway transport (ADN)	
Not relevant	
Notreievant	
Air transport (IATA)	
14.1 UN number	UN 1805
14.2 Proper shipping name	PHOSPHORIC ACID, SOLUTION
14.3 Class	8
14.4 Packing group	111
14.5 Environmentally hazardous	
14.6 Special precautions for	no
user	
Sea transport (IMDG)	

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14.1 UN number	UN 1805
14.2 Proper shipping name	PHOSPHORIC ACID SOLUTION
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	
14.6 Special precautions for	yes
user	
EmS	F-A S-B

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not relevant

SECTION 15. Regulatory information

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

<i>EU regulations</i> Major Accident Hazard Legislation	96/82/EC Directive 96/82/EC do	es not apply
Occupational restrictions	Take note of Dir 94/33 work.	/EC on the protection of young people at
Regulation (EC) No 1005/2009 on substances that not regulated deplete the ozone layer		
Regulation (EC) No 850/2004 of the European not regulated Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC		
Regulation (EC) No 689/2008 concerning the export not regulated and import of dangerous chemicals		not regulated
Substances of very high concern (SVHC)		This product does not contain substances of very high concern above the respective regulatory limit (> 0.1 % (w/w) Regulation (EC) No 1907/2006 (REACH), Article 57).
<i>National legislation</i> Storage class	10 - 13	

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out.

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SECTION 16. Other information

Full text of H-Statements referred to under sections 2 and 3.

H226	Flammable liquid and vapour.
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H332	Harmful if inhaled.

Full text of R-phrases referred to under sections 2 and 3

R10	Flammable.
R20/22	Harmful by inhalation and if swallowed.
R34	Causes burns.
R35	Causes severe burns.

Training advice

Provide adequate information, instruction and training for operators.

Labelling (67/548/EEC or 1999/45/EC)

Key or legend to abbreviations and acronyms used in the safety data sheet Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Regional representation

This information is given on the authorised Safety Data Sheet for your country.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.