



# Safety Data Sheet

This safety data sheet was created pursuant to the requirements of:  
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

Revision Date 2021-09-28

Revision Number 9

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

**Product Code** SD1284  
**Product Name** Pfu Protease S  
**Pure substance/mixture** Mixture

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

**Identified uses** No information available  
**Uses advised against** No information available

### 1.3. Details of the supplier of the safety data sheet

#### Supplier

##### USA:

Takara Bio USA, Inc.  
1290 Terra Bella Avenue  
Mountain View, CA 94043  
Phone: 800.662.2566/888.251.6618  
Web: www.takarabio.com

##### Europe:

Takara Bio Europe S.A.S.  
34, Rue de la Croix de Fer  
78100 Saint-Germain-en-Laye France  
Phone: +33 1 39 04 68 80  
Web: www.takarabio.com

##### Europe:

Takara Bio Europe AB  
Arvid Wallgrens Backe 20,  
SE-413 46 Goteborg, Sweden  
Phone: +46 31 758 09 00  
Web: www.takarabio.com

##### India:

DSS Takara Bio India Pvt. Ltd.  
A-5 Mohan Co-operative Industrial Estate, Mathura Road,  
New Delhi 110044, India  
Phone: +91 11 30886717

For further information, please contact:

### 1.4. Emergency telephone number

**Emergency telephone** In case of emergency, call PERS (Professional Emergency Resource Services)  
1-800-633-8253 (US) or 801-629-0667 (international).

## SECTION 2: Hazards identification

**2.1. Classification of the substance or mixture**

Regulation (EC) No 1272/2008

<b>Chronic aquatic toxicity</b>	Category 2 - (H411)
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**2.2. Label elements****Hazard statements**

H411 - Toxic to aquatic life with long lasting effects

**Precautionary Statements - EU (§28, 1272/2008)**

P273 - Avoid release to the environment

P391 - Collect spillage

P501 - Dispose of contents/ container to an approved waste disposal plant

**2.3. Other hazards**

Toxic to aquatic life.

## SECTION 3: Composition/information on ingredients

**3.1 Substances**

Not applicable

**3.2 Mixtures**

Chemical name	Weight-%	REACH registration number	EC No	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
Ethanol 64-17-5	20 - 30	No data available	200-578-6	Flam. Liq. 2 (H225)	-	-	-

**Full text of H- and EUH-phrases: see section 16**Acute Toxicity Estimate

If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapor - mg/L	Inhalation LC50 - 4 hour - gas - ppm
Ethanol 64-17-5	7060	No data available	116.9 133.8	No data available	No data available

This product does not contain candidate substances of very high concern at a concentration  $\geq 0.1\%$  (Regulation (EC) No. 1907/2006 (REACH), Article 59)

## SECTION 4: First aid measures

**4.1. Description of first aid measures**

<b>Inhalation</b>	Remove to fresh air.
<b>Eye contact</b>	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
<b>Skin contact</b>	Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.
<b>Ingestion</b>	Rinse mouth.

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

<b>Symptoms</b>	No information available.
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**4.3. Indication of any immediate medical attention and special treatment needed**

<b>Note to physicians</b>	Treat symptomatically.
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<b>SECTION 5: Firefighting measures</b>
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**5.1. Extinguishing media**

<b>Suitable Extinguishing Media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
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<b>Large Fire</b>	CAUTION: Use of water spray when fighting fire may be inefficient.
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<b>Unsuitable extinguishing media</b>	Do not scatter spilled material with high pressure water streams.
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**5.2. Special hazards arising from the substance or mixture**

<b>Specific hazards arising from the chemical</b>	No information available.
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**5.3. Advice for firefighters**

<b>Special protective equipment and precautions for fire-fighters</b>	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.
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<b>SECTION 6: Accidental release measures</b>
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**6.1. Personal precautions, protective equipment and emergency procedures**

<b>Personal precautions</b>	Ensure adequate ventilation.
<b>For emergency responders</b>	Use personal protection recommended in Section 8.

**6.2. Environmental precautions**

<b>Environmental precautions</b>	See Section 12 for additional Ecological Information.
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**6.3. Methods and material for containment and cleaning up**

<b>Methods for containment</b>	Prevent further leakage or spillage if safe to do so.
<b>Methods for cleaning up</b>	Take up mechanically, placing in appropriate containers for disposal.

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

#### 6.4. Reference to other sections

**Reference to other sections** See section 8 for more information. See section 13 for more information.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

**Advice on safe handling** Ensure adequate ventilation.

**General hygiene considerations** Handle in accordance with good industrial hygiene and safety practice.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage Conditions** Keep container tightly closed in a dry and well-ventilated place.

### 7.3. Specific end use(s)

**Identified uses**

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Exposure Limits

Chemical name	European Union	Austria	Belgium	Bulgaria	Croatia
Ethanol 64-17-5	-	STEL 2000 ppm STEL 3800 mg/m <sup>3</sup> TWA 1000 ppm TWA 1900 mg/m <sup>3</sup>	TWA 1000 ppm TWA 1907 mg/m <sup>3</sup>	TWA 1000 mg/m <sup>3</sup>	TWA 1000 ppm TWA 1900 mg/m <sup>3</sup>
Chemical name	Cyprus	Czech Republic	Denmark	Estonia	Finland
Ethanol 64-17-5	-	TWA: 1000 mg/m <sup>3</sup> Ceiling: 3000 mg/m <sup>3</sup>	TWA 1000 ppm TWA 1900 mg/m <sup>3</sup>	STEL 1000 ppm STEL 1900 mg/m <sup>3</sup> TWA 500 ppm TWA 1000 mg/m <sup>3</sup>	TWA 1000 ppm TWA 1900 mg/m <sup>3</sup> STEL 1300 ppm STEL 2500 mg/m <sup>3</sup>
Chemical name	France	Germany	Germany MAK	Greece	Hungary
Ethanol 64-17-5	TWA 1000 ppm TWA 1900 mg/m <sup>3</sup> STEL 5000 ppm STEL 9500 mg/m <sup>3</sup>	TWA: 200 ppm TWA: 380 mg/m <sup>3</sup>	AGW 200 ppm AGW 380 mg/m <sup>3</sup>	TWA 1000 ppm TWA 1900 mg/m <sup>3</sup>	STEL 3800mg/m <sup>3</sup> TWA 1900mg/m <sup>3</sup>
Chemical name	Ireland	Italy	Italy REL	Latvia	Lithuania
Ethanol 64-17-5	STEL 1000 ppm	200 ppm TWA AGW (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 4); 380 mg/m <sup>3</sup> TWA AGW (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are	STEL: 1000 ppm STEL: 1884 mg/m <sup>3</sup>	TWA 1000 mg/m <sup>3</sup>	TWA 500 ppm TWA 1000 mg/m <sup>3</sup> STEL 1000 ppm STEL 1900 mg/m <sup>3</sup>

Chemical name	Luxembourg	Malta	Netherlands	Norway	Poland
Ethanol 64-17-5	-	-	Huid* STEL 1900 mg/m <sup>3</sup> TWA 260 mg/m <sup>3</sup>	TWA 500 ppm TWA 950 mg/m <sup>3</sup> STEL 625 ppm STEL 1187.5 mg/m <sup>3</sup>	TWA 1900 mg/m <sup>3</sup>
Chemical name	Portugal	Romania	Slovakia	Slovenia	Spain
Ethanol 64-17-5	TWA 1000 ppm C(A3)	STEL 5000 ppm STEL 9500 mg/m <sup>3</sup> TWA 1000 ppm TWA 1900 mg/m <sup>3</sup>	Ceiling 1920 mg/m <sup>3</sup> TWA 500 ppm TWA 960 mg/m <sup>3</sup>	STEL 1000 ppm STEL 1920 mg/m <sup>3</sup> TWA 960 mg/m <sup>3</sup> TWA 500 ppm	STEL 1000 ppm STEL 1910 mg/m <sup>3</sup>
Chemical name	Sweden		Switzerland	United Kingdom	
Ethanol 64-17-5	TLV 500 ppm TLV 1000 mg/m <sup>3</sup> Indicative STEL 1000 ppm Indicative STEL 1900 mg/m <sup>3</sup>		SS-C** TWA 500 ppm TWA 960 mg/m <sup>3</sup> STEL 1000 ppm STEL 1920 mg/m <sup>3</sup>	STEL 3000 ppm STEL 5760 mg/m <sup>3</sup> TWA 1000 ppm TWA 1920 mg/m <sup>3</sup>	

### Biological occupational exposure limits

Chemical name	Denmark	Finland	France	Germany	Germany
Ethanol 64-17-5	-	-	-	-	Biologische Grenzwerte nach die Verordnung zur arbeitsmedizinischen Vorsorge vom 18. Dezember 2008 sind zu beachten

**Derived No Effect Level (DNEL)** No information available.

**Predicted No Effect Concentration (PNEC)** No information available.

### 8.2. Exposure controls

#### Personal Protective Equipment

**Eye/face protection** No special protective equipment required.

**Skin and body protection** No special protective equipment required.

**Respiratory protection** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**General hygiene considerations** Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls** No information available.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

**Physical state** Liquid  
**Appearance** Aqueous solution  
**Color** No information available  
**Odor** Alcohol.

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Odor Threshold	No information available	
Melting point / freezing point	No data available	None known
Boiling point/boiling range (°C)	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability limit:	No data available	
Lower flammability limit:	No data available	
Flash point	No data available	Open cup
Autoignition temperature	363 °C	None known
Decomposition temperature		None known
pH	No data available	None known
pH (as aqueous solution)	No data available	No information available
Kinematic viscosity	No data available	None known
Dynamic Viscosity	No data available	None known
Water solubility	No data available	None known
Solubility in other solvents	No data available	None known
Partition coefficient	No data available	None known
Vapor pressure	No data available	None known
Relative density	No data available	None known
Bulk Density	No data available	
Liquid Density	No data available	
Vapor density	No data available	None known
Particle characteristics		
Particle Size	No information available	
Particle Size Distribution	No information available	

## 9.2. Other information

9.2.1. Information with regard to physical hazard classes  
Not applicable

9.2.2. Other safety characteristics  
No information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Reactivity No information available.

### 10.2. Chemical stability

Stability Stable under normal conditions.

#### Explosion Data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

### 10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

### 10.4. Conditions to avoid

Conditions to avoid None known based on information supplied.

### 10.5. Incompatible materials

Incompatible materials None known based on information supplied.

### 10.6. Hazardous decomposition products

**Hazardous Decomposition Products** None known based on information supplied.

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Information on likely routes of exposure

##### Product Information

<b>Inhalation</b>	Specific test data for the substance or mixture is not available.
<b>Eye contact</b>	Specific test data for the substance or mixture is not available.
<b>Skin contact</b>	Specific test data for the substance or mixture is not available.
<b>Ingestion</b>	Specific test data for the substance or mixture is not available.

#### Symptoms related to the physical, chemical and toxicological characteristics

**Symptoms** No information available.

#### Numerical measures of toxicity

##### Acute toxicity

The following values are calculated based on chapter 3.1 of the GHS document  
ATEmix (oral) 28,240.00 mg/kg

##### Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Ethanol	= 7060 mg/kg ( Rat )	-	= 116.9 mg/L ( Rat ) 4 h = 133.8 mg/L ( Rat ) 4 h

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

<b>Skin corrosion/irritation</b>	No information available.
<b>Serious eye damage/eye irritation</b>	No information available.
<b>Respiratory or skin sensitization</b>	No information available.
<b>Germ cell mutagenicity</b>	No information available.
<b>Carcinogenicity</b>	No information available.
<b>Reproductive toxicity</b>	No information available.
<b>STOT - single exposure</b>	No information available.

**STOT - repeated exposure** No information available.

**Aspiration hazard** No information available.

## 11.2. Information on other hazards

### 11.2.1. Endocrine disrupting properties

**Endocrine disrupting properties** No information available.

### 11.2.2. Other information

**Other adverse effects** No information available.

## SECTION 12: Ecological information

### 12.1. Toxicity

**Ecotoxicity** Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

**Unknown aquatic toxicity** Contains 0.6972 % of components with unknown hazards to the aquatic environment.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Ethanol	-	12.0 - 16.0: 96 h Oncorhynchus mykiss mL/L LC50 static 13400 - 15100: 96 h Pimephales promelas mg/L LC50 flow-through 100: 96 h Pimephales promelas mg/L LC50 static	-	9268 - 14221: 48 h Daphnia magna mg/L LC50 2: 48 h Daphnia magna mg/L EC50 Static

### 12.2. Persistence and degradability

**Persistence and degradability** No information available.

### 12.3. Bioaccumulative potential

**Bioaccumulation** There is no data for this product.

#### Component Information

Chemical name	Partition coefficient
Ethanol	-0.32

### 12.4. Mobility in soil

**Mobility in soil** No information available.

### 12.5. Results of PBT and vPvB assessment

#### PBT and vPvB assessment

Chemical name	PBT and vPvB assessment
Ethanol	The substance is not PBT / vPvB PBT assessment does not apply

### 12.6. Endocrine disrupting properties

**Endocrine disrupting properties** No information available.



**12.7. Other adverse effects**

No information available.

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

<b>Waste from residues/unused products</b>	Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
<b>Contaminated packaging</b>	Do not reuse empty containers.

**SECTION 14: Transport information****IATA**

<b>14.1 UN number or ID number</b>	UN1993
<b>14.2 UN proper shipping name</b>	Flammable liquid, n.o.s. (Ethanol)
<b>14.3 Transport hazard class(es)</b>	3
<b>14.4 Packing group</b>	III
<b>Description</b>	UN1993, Flammable liquid, n.o.s. (Ethanol), 3, III
<b>14.5 Environmental hazards</b>	Yes
<b>14.6 Special precautions for user</b>	
<b>Special Provisions</b>	A3
<b>ERG Code</b>	3L

**IMDG**

<b>14.1 UN number or ID number</b>	UN1993
<b>14.2 UN proper shipping name</b>	Flammable liquid, n.o.s. (Ethanol), Marine Pollutant
<b>14.3 Transport hazard class(es)</b>	3
<b>14.4 Packing group</b>	III
<b>Description</b>	UN1993, Flammable liquid, n.o.s. (Ethanol), 3, III, Marine Pollutant
<b>14.5 Environmental hazards</b>	Yes
<b>14.6 Special precautions for user</b>	
<b>Special Provisions</b>	223, 274, 955
<b>F-E, S-E</b>	
<b>14.7 Maritime transport in bulk according to IMO instruments</b>	No information available

**RID**

<b>14.1 UN number or ID number</b>	UN1993
<b>14.2 UN proper shipping name</b>	Flammable liquid, n.o.s. (Ethanol), Environmentally Hazardous
<b>14.3 Transport hazard class(es)</b>	3
<b>14.4 Packing group</b>	III
<b>Description</b>	UN1993, Flammable liquid, n.o.s. (Ethanol), 3, III, Environmentally Hazardous
<b>14.5 Environmental hazards</b>	Yes
<b>14.6 Special precautions for user</b>	
<b>Special Provisions</b>	274, 601
<b>Classification code</b>	F1

**ADR**

<b>14.1 UN number or ID number</b>	UN1993
<b>14.2 UN proper shipping name</b>	Flammable liquid, n.o.s. (Ethanol), Environmentally Hazardous
<b>14.3 Transport hazard class(es)</b>	3
<b>14.4 Packing group</b>	III
<b>Description</b>	UN1993, Flammable liquid, n.o.s. (Ethanol), 3, III, (D/E), Environmentally Hazardous
<b>14.5 Environmental hazards</b>	Yes
<b>14.6 Special precautions for user</b>	
<b>Special Provisions</b>	274, 601
<b>Classification code</b>	F1

Tunnel restriction code (D/E)

**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****National regulations****France****Occupational Illnesses (R-463-3, France)**

Chemical name	French RG number	Title
Ethanol 64-17-5	RG 84	-

**Netherlands**

Chemical name	Netherlands - List of Carcinogens	Netherlands - List of Mutagens	Netherlands - List of Reproductive Toxins
Ethanol	Carcinogeen	-	Toxisch voor de voortplanting

**European Union**

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

**Authorizations and/or restrictions on use:**

This product does not contain substances subject to authorization (Regulation (EC) No. 1907/2006 (REACH), Annex XIV) This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

**Persistent Organic Pollutants**

Not applicable

**Dangerous substance category per Seveso Directive (2012/18/EU)**

E2 - Hazardous to the Aquatic Environment in Category Chronic 2

**Ozone-depleting substances (ODS) regulation (EC) 1005/2009**

Not applicable

**International Inventories**

TSCA	-
DSL/NDSL	-
EINECS/ELINCS	-
ENCS	-
IECSC	-
KECL	-
PICCS	-
AICS	-

**Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**AICS** - Australian Inventory of Chemical Substances

## 15.2. Chemical safety assessment

**Chemical Safety Assessment** No information available

## SECTION 16: Other information

### Key or legend to abbreviations and acronyms used in the safety data sheet

#### Full text of H-Statements referred to under section 3

H225 - Highly flammable liquid and vapor

#### Legend

SVHC: Substances of Very High Concern for Authorization:

#### Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	Time weighted average	STEL	Short term exposure limit
Ceiling	Maximum limit value	*	Skin designation
**	Hazard Designation	+	Sensitizers

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapor	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitization	Calculation method
Skin sensitization	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

#### Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)  
 U.S. Environmental Protection Agency ChemView Database  
 European Food Safety Authority (EFSA)  
 EPA (Environmental Protection Agency)  
 Acute Exposure Guideline Level(s) (AEGL(s))  
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
 U.S. Environmental Protection Agency High Production Volume Chemicals  
 Food Research Journal  
 Hazardous Substance Database  
 International Uniform Chemical Information Database (IUCLID)  
 Japan GHS Classification  
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
 NIOSH (National Institute for Occupational Safety and Health)  
 National Library of Medicine's ChemID Plus (NLM CIP)  
 National Library of Medicine's PubMed database (NLM PUBMED)  
 National Toxicology Program (NTP)

New Zealand's Chemical Classification and Information Database (CCID)  
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
Organization for Economic Co-operation and Development Screening Information Data Set  
World Health Organization

**Revision Date** 2021-09-28

**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**

**Disclaimer**

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**End of Safety Data Sheet**