Safety Data Sheet



Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier	
Product Name	Deep Clean S100
Product Code	70376
1.2 Relevant identified use	es of the substance or mixture and uses advised against
Relevant identified use(s)	Various
1.3 Details of the supplier	of the safety data sheet
Manufacturer	Air Liquide
	2700 Post Oak Blvd. Houston, TX 77056 United States www.us.airliquide.com sds@airliquide.com
Telephone (Technical)	713-896-2896
Telephone (Technical)	800-819-1704
1.4 Emergency telephone	number

Manufacturer	I	800-424-9300 - CHEMTREC
Manufacturer	I	+1 703-527-3887 - Outside United States

Section 2: Hazards Identification

EU/EEC

According to Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010] According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP	Acute Toxicity Oral 4 - H302 Skin Corrosion 1B - H314
DSD/DPD	⊤ Toxic (T) Harmful (Xn) R22, R34

2.2 Label Elements

CLP



Hazard statements

H302 - Harmful if swallowed H314 - Causes severe skin burns and eye damage.

Precautionary statements Prevention P260 - Do not breathe mist/vapours/sprav. P264 - Wash thoroughly after handling. P270 - Do not eat, drink or smoke when using this product. P280 - Wear protective gloves/protective clothing/eye protection/face protection. P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position Response | comfortable for breathing. P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P310 - Immediately call a POISON CENTER or doctor/physician. P321 - Specific treatment, see supplemental first aid information. P363 - Wash contaminated clothing before reuse. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P301+P312 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician if you feel unwell. Storage/Disposal P405 - Store locked up. P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. DSD/DPD Risk phrases R22 - Harmful if swallowed. R34 - Causes burns. Safety phrases S36 - Wear suitable protective clothing. S37 - Wear suitable gloves. S39 - Wear eye/face protection. S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). 2.3 Other Hazards CLP According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous. DSD/DPD According to European Directive 1999/45/EC this material is considered dangerous.

United States (US) According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012 Acute Toxicity Oral 4 - H302 Skin Corrosion 1B - H314

2.2 Label elements

OSHA HCS 2012





Serious Eye Damage 1 - H318

Hazard statements |

Harmful if swallowed - H302 Causes severe skin burns and eye damage. - H314 Causes serious eye damage - H318

Precautionary statements

Prevention 1	Do not breathe mist/vapours/spray P260 Wash thoroughly after handling P264 Do not eat, drink or smoke when using this product P270 Wear protective gloves/protective clothing/eye protection/face protection P280
Response _I	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing P304+P340 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower P303+P361+P353 Specific treatment, see supplemental first aid information P321 Wash contaminated clothing before reuse P363 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P305+P351+P338 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting P301+P330+P331 Immediately call a POISON CENTER or doctor/physician P310
Storage/Disposal ₁	Store locked up P405 Dispose of content and/or container in accordance with local, regional, national, and/or international regulations P501
2.3 Other hazards OSHA HCS 2012	Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to WHMIS

2.1 Classification of the substance or mixture

WHMIS 2.2 Label elements WHMIS



Corrosive - E

| Corrosive - E

2.3 Other hazards

WHMIS

In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

2.4 Other information



Section 3 - Composition/Information on Ingredients

3.1 Substances

Material does not meet the criteria of a substance in accordance with Regulation (EC) No 1272/2008.

3.2 Mixtures

Composition			
Chemical Name	Identifiers	%	Classifications According to Regulation/Directive
Water and other non-hazardous components	NDA	> 75%	EU DSD/DPD: Not Hazardous EU CLP: Not Hazardous OSHA HCS 2012: Not Hazardous
Ammonium hydrogen fluoride	CAS :1341-49-7 EC Number :215-676- 4 EU Index :009-009-00- 4	< 16%	EU DSD/DPD: Annex I: T; R25 C; R34 EU CLP: Annex VI: Acute Tox. 3, H301; Skin Corr. 1B, H314 OSHA HCS 2012: Skin Corr. 1; Eye Dam. 1; Acute Tox. 3 (Oral)

See Section 16 for full text of H-statements and R-phrases.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation	ļ	Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately.
Skin	Ι	For minor skin contact, avoid spreading material on unaffected skin. In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Remove and isolate contaminated clothing. Get medical attention immediately.
Еуе	Ι	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. Get medical attention immediately.
Ingestion	I	If swallowed, rinse mouth with water (only if the person is conscious) Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Give plenty of water to drink. Do not use mouth-to-mouth method if victim ingested the substance. Obtain medical attention immediately if ingested.
4.2 Most important symptoms and effects, both acute and delayed		
	I	Refer to Section 11 - Toxicological Information.
4.3 Indication of any immediate medical attention and special treatment needed		

Notes to Physician All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media	1	LARGE FIRES: Dry chemical, CO2, alcohol-resistant foam or water spray. SMALL FIRES: Dry chemical, CO2 or water spray.
Unsuitable Extinguishing Media	Ι	No data available
5.2 Special hazards arisi	ng	g from the substance or mixture
Unusual Fire and Explosion Hazards	Ι	Containers may explode when heated. Acid reacts with most metals to release hydrogen gas, which can form explosive mixtures with air.
Hazardous Combustion Products	Ι	Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive fumes.

5.3 Advice for firefighters

 Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.
 Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
 Wear positive pressure self-contained breathing apparatus (SCBA).
 SMALL FIRES: Move containers from fire area if you can do it without risk. Runoff from fire control may cause pollution.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Dike to collect large liquid spills.

Personal Precautions	I	Ventilate enclosed areas. Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
Emergency Procedures	I	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Do not get water inside container.
6.2 Environmental pre	caut	ions
	I	Prevent entry into waterways, sewers, basements or confined areas.
6.3 Methods and mate	rial f	or containment and cleaning up
Containment/Clean-up Measures	I	Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

A vapor suppressing foam may be used to reduce vapors. Use water spray to reduce vapors or divert vapor cloud drift.

with litmus paper to ensure neutralization is complete.

Neutralize residue with neutralizing agent appropriate for acidic materials. Test area

Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal

Section 7 - Handling and Storage

7.1 Precautions for safe handling

6.4 Reference to other sections

Handling Handle and open container with care. Use only with adequate ventilation. Use caution when combining with water; DO NOT add water to corrosive liquid, ALWAYS add corrosive liquid to water while stirring to prevent release of heat, steam and fumes. Wear appropriate personal protective equipment, avoid direct contact. Do not breathe mist, vapours, spray. Do not get in eyes, on skin, or on clothing. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

7.2 Conditions for safe storage, including any incompatibilities

Considerations.

- Storage Keep container tightly closed. Store in a cool, dry, well-ventilated place. Keep away from incompatible materials. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.
- 7.3 Specific end use(s)
- Refer to Section 1.2 Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines	I	Currently there are no applicable exposure limits established for this material.
8.2 Exposure controls		
Engineering Measures/Controls	I	Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.
Personal Protective Equipme	nt	
Respiratory	I	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.
Eye/Face	I	Wear chemical splash safety goggles.
Skin/Body	I	Wear appropriate gloves.
Environmental Exposure Controls	I	Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways. Follow best practice for site management and disposal of waste.

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description				
Physical Form	Liquid	Appearance/Description	Slightly blue, corrosive liquid with an ammonia odor.	
Color	Blue	Odor	Ammonia	
Odor Threshold	Data lacking			
General Properties				
Boiling Point	98 C(208.4 F)	Melting Point	Data lacking	
Decomposition Temperature	Data lacking	рН	3	
Specific Gravity/Relative Density	1.06 Water=1	Water Solubility	Soluble	
Viscosity	Data lacking	Explosive Properties	Data lacking	
Oxidizing Properties:	Data lacking			
Volatility				
Vapor Pressure	Data lacking	Vapor Density	> 1 Air=1	
Evaporation Rate	< 1 n-Butyl Acetate = 1			
Flammability				
Flash Point	Data lacking	UEL	Data lacking	
LEL	Data lacking	Autoignition	Data lacking	
Flammability (solid, gas)	Data lacking			
Environmental				
Octanol/Water Partition coefficient	Data lacking		Î	

9.2 Other Information

1 No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

1 No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

l Stable

10.3 Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4 Conditions to avoid

| Excess heat.

10.5 Incompatible materials

Strong oxidizers, bases and acids. This product can react with silicon containing materials like glass or ceramics at room temperature (formation of SiF4).

10.6 Hazardous decomposition products

Combustion: Hydrogen fluoride, ammonia, and nitrogen oxides. Hydrolysis: Hydrofluoric acid.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

GHS Properties	Classification
Acute toxicity	EU/CLP • Acute Toxicity - Oral 4 - ATEmix(oral)=812.5 mg/kg OSHA HCS 2012 • Acute Toxicity - Oral 4 - ATEmix(oral)=812.5 mg/kg
Aspiration Hazard	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Carcinogenicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Germ Cell Mutagenicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Skin corrosion/Irritation	EU/CLP • Skin Corrosion 1B OSHA HCS 2012 • Skin Corrosion 1B
Skin sensitization	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
STOT-RE	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
STOT-SE	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Toxicity for Reproduction	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Respiratory sensitization	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Serious eye damage/Irritation	EU/CLP • Classification criteria not met OSHA HCS 2012 • Serious Eye Damage 1

Potential Health Effects Inhalation

Acute (Immediate) Chronic (Delayed)

- May cause corrosive burns irreversible damage.
- Repeated or prolonged exposure to corrosive fumes may cause bronchial irritation with chronic cough.

Skin	
Acute (Immediate)	L Causes severe skin burns and eye damage.
Chronic (Delayed)	Repeated or prolonged exposure to corrosive materials will cause dermatitis.
Eye	
Acute (Immediate)	L Causes serious eye damage.
Chronic (Delayed)	Repeated or prolonged exposure to corrosive materials or fumes may cause conjunctivitis.
Ingestion	
Acute (Immediate)	Harmful if swallowed. May cause irreversible damage to mucous membranes.
Chronic (Delayed)	Repeated or prolonged exposure to corrosive materials or fumes may cause gastrointestinal distrubances.

Section 12 - Ecological Information

12.1 Toxicity

| Material data lacking.

12.2 Persistence and degradability

| Material data lacking.

12.3 Bioaccumulative potential

| Material data lacking.

12.4 Mobility in Soil

| Material data lacking.

12.5 Results of PBT and vPvB assessment

No PBT and vPvB assessment has been conducted.

12.6 Other adverse effects

1 No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste	I	Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.
Packaging waste	I	Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN3266	Corrosive Liquid, basic, inorganic, nos (Ammonium Bifluoride)	8	II	NDA
TDG	UN3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Ammonium Bifluoride)	8	II	NDA

14.6 Special precautions for I None known. user						
ΙΑΤΑ/ΙCΑΟ	UN3266	Corrosive Liquid, basic, inorganic, nos (Ammonium Bifluoride)	8	II	NDA	
IMO/IMDG	UN3266	CORROSIVE LIQUID,BASIC, INORGANIC, N.O.S. (Ammonium Bifluoride)	8	II	NDA	

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

Section 15 - Regulatory Information

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

SARA Hazard Classifications | Acute

State Right To Know					
Component	CAS	MA	NJ	PA	
Ammonium hydrogen fluoride	1341-49-7	Yes	Yes	Yes	

Inventory							
Component	CAS	Canada DSL	Canada NDSL	China	1	EU EINECS	EU ELNICS
Ammonium hydrogen fluoride	1341-49-7	Yes	No	Yes		Yes	No
Inventory (Con't.)							
Component	Component CAS TSCA						
Ammonium hydrogen fluoride			41-49-7		Yes		

Canada

Labor Canada - WHMIS - Classifications of Substances		
Ammonium hydrogen fluoride	1341-49-7	E
Canada - WHMIS - Ingredient Disclosure List		
Ammonium hydrogen fluoride	1341-49-7	Not Listed
Environment		
Canada - CEPA - Priority Substances List		
Ammonium hydrogen fluoride	1341-49-7	Not Listed
China		
Environment		
China - Ozone Depleting Substances - First Schedule		
Ammonium hydrogen fluoride	1341-49-7	Not Listed
China - Ozone Depleting Substances - Second Schedule		
Ammonium hydrogen fluoride	1341-49-7	Not Listed
Prenaration Date: 23/December/2014	Form	at: ELLCLP/REACH Language: English

1341-49-7	Not Listed	
		٦
1341-49-7	Not Listed	
1341-49-7	(solid or solution)	
1341-49-7		
	1341-49-7 1341-49-7	1341-49-7 Not Listed 1341-49-7 (solid or solution)

Europe

Other EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification • Ammonium hydrogen fluoride	1341-49-7	T; R25 C; R34
EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits		10%<=C: T; R:25 1%
Ammonium hydrogen fluoride	1341-49-7	<=C<10%: Xn; R:22 1%<=C: C; R:34 0.1%<=C<1%: Xi; R:36/38
EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling		
Ammonium hydrogen fluoride	1341-49-7	T C R:25-34 S:(1/2)-22-26-37- 45
EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations • Ammonium hydrogen fluoride	1341-49-7	Not Listed
EU - CLP (1272/2008) - Annex VI - Table 3.2 - Safety Phrases Ammonium hydrogen fluoride 	1341-49-7	S:(1/2)-22-26-37-45

Germany

Environment		
Germany - TA Luft - Types and Classes		
Ammonium hydrogen fluoride	1341-49-7	Not Listed
Germany - Water Classification (VwVwS) - Annex 1		
Ammonium hydrogen fluoride	1341-49-7	Not Listed
Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes		
Ammonium hydrogen fluoride	1341-49-7	ID Number 292, hazard class 1 - low hazard to waters
Germany - Water Classification (VwVwS) - Annex 3		
Ammonium hydrogen fluoride	1341-49-7	Not Listed
Other Germany - Specifically Regulated Chemicals in TRGS	1044 40 7	Netlined
 Ammonium hydrogen fluoride 	1341-49-7	Not Listed

Portugal

. en agai		
Other Portugal - Prohibited Substances • Ammonium hydrogen fluoride	1341-49-7	Not Listed
United Kingdom		
Environment		
United Kingdom - Pollution Inventory - Schedule 1 - Thresholds for Releases to A Ammonium hydrogen fluoride 	ir 1341-49-7	Not Listed
Other		
 United Kingdom - Workplace Exposure Limits (WELs) - Substances in Review Ammonium hydrogen fluoride 	1341-49-7	Not Listed
United Kingdom - List of Dangerous Substances in Water Ammonium hydrogen fluoride 	1341-49-7	Not Listed
United States		
Labor		
U.S OSHA - Process Safety Management - Highly Hazardous Chemicals • Ammonium hydrogen fluoride	1341-49-7	Not Listed
U.S OSHA - Specifically Regulated Chemicals		
Ammonium hydrogen fluoride	1341-49-7	Not Listed
_		
Environment U.S CAA (Clean Air Act) - 1990 Hazardous Air Pollutants		
Ammonium hydrogen fluoride	1341-49-7	Not Listed
U.S CERCLA/SARA - Hazardous Substances and their Reportable Quantities		
Ammonium hydrogen fluoride	1341-49-7	100 lb final RQ; 45.4 kg final RQ
U.S CERCLA/SARA - Radionuclides and Their Reportable Quantities Ammonium hydrogen fluoride 	1341-49-7	Not Listed
U.S CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs • Ammonium hydrogen fluoride	1341-49-7	Not Listed
U.S CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs Ammonium hydrogen fluoride 	1341-49-7	Not Listed
U.S CERCLA/SARA - Section 313 - Emission Reporting Ammonium hydrogen fluoride 	1341-49-7	Not Listed
U.S CERCLA/SARA - Section 313 - PBT Chemical Listing Ammonium hydrogen fluoride 	1341-49-7	Not Listed
U.S EPA - Designated Generic Categories - Aqueous Ammonia • Ammonium hydrogen fluoride	1341-49-7	NH3 Equiv. Wt. % = 29.86

• Ammonium hydrogen fluoride

United States - California

.S California - Proposition 65 - Carcinogens List Ammonium hydrogen fluoride	1341-49-7	Not Listed
I.S California - Proposition 65 - Developmental Toxicity Ammonium hydrogen fluoride	1341-49-7	Not Listed
J.S California - Proposition 65 - Maximum Allowable Dose Levels (MADL) Ammonium hydrogen fluoride	1341-49-7	Not Listed
J.S California - Proposition 65 - No Significant Risk Levels (NSRL) Ammonium hydrogen fluoride	1341-49-7	Not Listed
J.S California - Proposition 65 - Reproductive Toxicity - Female Ammonium hydrogen fluoride	1341-49-7	Not Listed
J.S California - Proposition 65 - Reproductive Toxicity - Male Ammonium hydrogen fluoride	1341-49-7	Not Listed

United States - Pennsylvania

abor U.S Pennsylvania - RTK (Right to Know) - Environmental Hazard List		
Ammonium hydrogen fluoride	1341-49-7	
U.S Pennsylvania - RTK (Right to Know) - Special Hazardous Substances		
Ammonium hydrogen fluoride	1341-49-7	Not Listed

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Relevant Phrases (code & full text) H301 - Toxic if swallowed R25 - Toxic if swallowed. Last Revision Date 23/December/2014 23/December/2014 **Preparation Date Disclaimer/Statement of** To the best of Air Liquide's knowledge, the information contained herein is reliable and Liability accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this gas mixture is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition. Key to abbreviations NDA = No data available