



Infosafe No™	1CH34	Issue Date : September 2017	RE-ISSUED by CHEMSUPP
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Product Name : **HYDROCHLORIC ACID 25 - 36%**

Classified as hazardous

**1. Identification**

<b>GHS Product Identifier</b>	HYDROCHLORIC ACID 25 - 36%	
<b>Company Name</b>	CHEM-SUPPLY PTY LTD (ABN 19 008 264 211)	
<b>Address</b>	38 - 50 Bedford Street GILLMAN SA 5013 Australia	
<b>Telephone/Fax Number</b>	Tel: (08) 8440-2000 Fax: (08) 8440-2001	
<b>Recommended use of the chemical and restrictions on use</b>	Acidising (activation) of petroleum wells; boiler scale removal; as catalyst and solvent in organic synthesis; chemical intermediate in the production of chlorides (ammonium chloride), phosphoric acid, chlorine dioxide, isocyanate; used in the manufacture of fertilizers, dyes and dyestuffs, artificial silk and pigments for paints and synthetic rubber; ore reduction; food processing as a starch modifier, alcohol denaturant (manufacture of corn syrup, sodium glutamate, gelatin, in the brewing industry, in sugar refining); pickling and metal cleaning; recovery of zinc from galvanized iron scrap; industrial acidising in electroplating, leather tanning, photographic industry, soap refining, textile industry; pharmaceutical aid (acidifier); general cleaning, e.g. of membrane in desalination plants; ion-exchange resin regeneration (water treatment, chemical purification); pH control (water treatment); and laboratory reagent.	
<b>Other Names</b>	<u>Name</u>	<u>Product Code</u>
	HYDROCHLORIC ACID 32% AR	HA020
	HYDROCHLORIC ACID 32% LR	HL020
	HYDROCHLORIC ACID 32% TG	HT020
<b>Other Information</b>	Muriatic acid, Spirits of salts, Hydrogen chloride solution EMERGENCY CONTACT NUMBER: +61 08 8440 2000 Business hours: 8:30am to 5:00pm, Monday to Friday.	

Chem-Supply Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon Chem-Supply Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of Chem-Supply Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

**2. Hazard Identification**

<b>GHS classification of the substance/mixture</b>	Skin Corrosion/Irritation: Category 1B Specific Target Organ Toxicity Single Exposure Category 3 (respiratory tract irritation) Corrosive to Metals: Category 1
<b>Signal Word (s)</b>	DANGER
<b>Hazard Statement (s)</b>	H290 May be corrosive to metals. H314 Causes severe skin burns and eye damage. H335 May cause respiratory irritation.
<b>Pictogram (s)</b>	Corrosion, Exclamation mark



<b>Precautionary statement – Prevention</b>	P234 Keep only in original container. P260 Do not breathe dust/fume/gas/mist/vapours/spray. P264 Wash skin thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/protective clothing/eye protection/face protection.
<b>Precautionary statement – Response</b>	P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting. P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for



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breathing.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 Immediately call a POISON CENTER or doctor/physician.  
P363 Wash contaminated clothing before reuse.  
P337+P313 If eye irritation persists: Get medical advice/attention.  
P390 Absorb spillage to prevent material damage.  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
P406 Store in corrosive resistant container with a resistant inner liner.  
P501 Dispose of contents/container according to local, state and federal regulations.

**Precautionary statement – Storage**

**Precautionary statement – Disposal**

**3. Composition/information on ingredients**

<b>Chemical Characterization</b>	Liquid															
<b>Information on Composition</b>	Aqueous solution of the gas hydrogen chloride.															
<b>Ingredients</b>	<table border="1"> <thead> <tr> <th><u>Name</u></th> <th><u>CAS</u></th> <th><u>Proportion</u></th> <th><u>Hazard Symbol</u></th> <th><u>Risk Phrase</u></th> </tr> </thead> <tbody> <tr> <td>Water</td> <td>7732-18-5</td> <td>64-75 %</td> <td></td> <td></td> </tr> <tr> <td>Hydrochloric acid</td> <td>7647-01-0</td> <td>25-36 %</td> <td></td> <td></td> </tr> </tbody> </table>	<u>Name</u>	<u>CAS</u>	<u>Proportion</u>	<u>Hazard Symbol</u>	<u>Risk Phrase</u>	Water	7732-18-5	64-75 %			Hydrochloric acid	7647-01-0	25-36 %		
<u>Name</u>	<u>CAS</u>	<u>Proportion</u>	<u>Hazard Symbol</u>	<u>Risk Phrase</u>												
Water	7732-18-5	64-75 %														
Hydrochloric acid	7647-01-0	25-36 %														

**4. First-aid measures**

**Inhalation** Remove from exposure, rest and keep warm. If breathing has stopped, apply artificial respiration. If breathing is difficult, give oxygen. If rapid recovery does not occur, obtain medical attention.

**Ingestion** Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek immediate medical advice.

**Skin** If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Remove contaminated clothing and wash before re-use. Seek urgent medical assistance.

**Eye contact** If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. Seek immediate medical assistance.

**First Aid Facilities** Maintain eyewash fountain and drench facilities in work area.

**Advice to Doctor** Treat symptomatically based on judgement of doctor and individual reactions of the patient. Treat symptomatically as for strong acids.

**Other Information** For advice, contact a Poisons Information Centre (Phone eg Australia 13 1126; New Zealand 0800 764 766) or a doctor.

**5. Fire-fighting measures**

**Suitable extinguishing media** Use fire extinguishing media appropriate for surrounding environment. Use water spray, dry chemical, carbon dioxide, or appropriate foam.

**Hazards from Combustion Products** Irritating and highly toxic fumes of hydrogen chloride. Can react with metals generating flammable hydrogen gas.

**Specific Methods** When material is not involved in fire: Do not use water on material itself.

**Hazchem Code** 2R

**Decomposition Temp.** >1500 °C (decomposition of hydrogen chloride to hydrogen and chlorine).

**Precautions in connection with Fire** Wear SCBA and acid-resistant chemical splash suit.

**6. Accidental release measures**

**Spills & Disposal** Evacuate unprotected personnel from danger area. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas. Vapour-suppressing foam may be used to control vapours - Water spray may be used to knock down or divert vapour clouds. DO NOT GET WATER INSIDE CONTAINERS. Small Spill: Cover with DRY earth, sand or other non-combustible material followed by a plastic sheet to minimize spreading or contact with rain. Use clean non-sparking tools to collect material and place it into



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<b>Personal Precautions</b>	loosely-covered plastic containers for later disposal. Avoid contact with substance, do not breathe vapours.
<b>Personal Protection</b>	Wear protective clothing specified for normal operations (see Section 8)
<b>Clean-up Methods - Large Spillages</b>	Seek expert advice on handling and disposal.
<b>Environmental Precautions</b>	Do not discharge to the environment or sewer system. Prevent further leaking if safe to do so. If product contaminates rivers and lakes or drains inform respective authorities.

**7. Handling and storage**

<b>Precautions for Safe Handling</b>	Use only with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Wear appropriate protective equipment to prevent inhalation, skin and eye contact. When diluting, the acid should always be added slowly to water and in small amounts. Never use hot water and never add water to the acid. Keep away from incompatibles such as oxidizing agents, organic materials, metals, alkalis, moisture/water.
<b>Conditions for safe storage, including any incompatibilities</b>	Store in original container, tightly closed, in a cool, dry, well-ventilated storage area with acid resistant floors. Store away from incompatible substances. Do not store in metal containers. Containers of this material may be hazardous when empty since they retain product residues (vapours, liquid); observe all warnings and precautions listed for the product.
<b>Corrosiveness</b>	Very corrosive to most metals. Rubber-lined steel, Hastelloy, Hastelby and tantalum, are the most commonly used corrosion-resistant materials of construction. Rubber, glass, plastic and ceramic ware are also resistant to corrosion.
<b>Storage Regulations</b>	Refer Australian Standard AS 3780-1994 'The storage and handling of corrosive substances'.
<b>Storage Temperatures</b>	Store in a cool place (below 25 °C).

**8. Exposure controls/personal protection**

Occupational exposure limit values	Name	STEL		TWA		Footnote
		mg/m3	ppm	mg/m3	ppm	
	Hydrochloric acid			7.5	5	Hydrogen chloride Peak Limitation
<b>Other Exposure Information</b>	A time weighted average (TWA) has been established for Hydrogen chloride (Safe Work Australia) of 7.5 mg/m <sup>3</sup> (Peak limitation), (5 ppm). The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.					
<b>Appropriate engineering controls</b>	Provide sufficient ventilation to ensure that the working environment is below the TWA (time weighted average). In industrial situations maintain the concentrations values below the TWA. This may be achieved by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods.					
<b>Respiratory Protection</b>	Where ventilation is not adequate, respiratory protection may be required. Avoid breathing vapours or mists. Select and use respirators in accordance with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. When mists or vapours exceed the exposure standards then the use of the following is recommended: Approved respirator with organic vapour and dust/mist filters. Filter capacity and respirator type depends on exposure levels.					
<b>Eye Protection</b>	The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.					
<b>Hand Protection</b>	Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance. Recommendation: Excellent: NR latex. Good: Vinyl, nitrile, neoprene gloves.					
<b>Personal Protective Equipment</b>	Final choice of personal protective equipment will depend on individual circumstances and/or according to risk assessments undertaken.					
<b>Footwear</b>	Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.					
<b>Body Protection</b>	Clean clothing or protective clothing should be worn, preferably with an apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals. Recommendation: Natural rubber apron					



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**Hygiene Measures** Always wash hands before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.**9. Physical and chemical properties**

<b>Form</b>	Liquid
<b>Appearance</b>	Clear, colourless or slightly yellow liquid. Tendency to fume at higher concentrations.
<b>Odour</b>	Strong, pungent, choking, irritating odour of hydrogen chloride.
<b>Decomposition Temperature</b>	>1500 °C (decomposition of hydrogen chloride to hydrogen and chlorine).
<b>Melting Point</b>	-52 °C (30%); -46.2 °C (31.24%); -43 °C to -42 °C (32%); -34 °C (33%); -36 °C (34%); -35 °C (35%); -30 °C (36%).
<b>Boiling Point</b>	90 °C (30%); 83 °C @ 760 mm Hg (31%); 79 °C at 1013 hPa (32%); 71 °C (34%); 61 °C (36%) (Boiling weaker or stronger aqueous solution results in loss of either component until constant boiling acid is obtained.)
<b>Solubility in Water</b>	Soluble in all proportions with slight evolution of heat (56.1 g/100 ml at 60 °C; 67 g/100 ml at 30°C; 82.3 g/100 ml at 0 °C).
<b>Solubility in Organic Solvents</b>	Very soluble in alcohols; soluble in diethyl ether and benzene; insoluble in hydrocarbons.
<b>Specific Gravity</b>	1.15 (29.57%); 1.159 (32%); 1.19 (33%); 1.169 (34%); 1.18 (35%); 1.179 (36%).
<b>pH</b>	-1.0 (30% (w/w)); -1.0 (32% (w/w)); -1.0 (34% (w/w)); -1.1 (36% (w/w)) (strongly acidic).
<b>Vapour Pressure</b>	0.76 kPa (25%); 1.41 kPa (30%); 3.13 kPa (32%); 6.73 kPa (34%); 11.2 kPa (35%); 14.1 kPa (36%).
<b>Vapour Density (Air=1)</b>	1.268.
<b>Evaporation Rate</b>	>1 (36%)
<b>Odour Threshold</b>	1-5 ppm (detectable); 10 ppm (irritating); 35 ppm (irritating) (~35%). Warning Properties: NOT RELIABLE - odour threshold is about the same magnitude as TLV.
<b>Volatile Component</b>	Hydrogen Chloride Gas
<b>Partition Coefficient: n-octanol/water</b>	log Pow: 0.25.
<b>Flammability</b>	Non combustible material.
<b>Molecular Weight</b>	36.46
<b>Dynamic Viscosity</b>	1.70 mPa·s (30%); 1.80 mPa·s (32%); 1.90 mPa·s (34%); 1.99 mPa·s (36%).
<b>Saturated Vapour Concentration</b>	130,000 ppm at 20 °C (calculated) (~35%).
<b>Other Information</b>	Index of refraction: 1.34168 @ 18 °C/D (1.0 N solution). Critical Temperature 51.5 °C (36-38%). Conversion Factor: 1 ppm = 1.49 mg/m <sup>3</sup> ; 1 mg/m <sup>3</sup> = 0.67 ppm at 25 °C (about 35%). Concentration (Baumé): 19 (30% (w/w)); 20 (32% (w/w)); 21 (34% (w/w)); 22 (36% (w/w)). Molarity: 9.45 M (30% (w/w)); 10.17 M (32% (w/w)); 10.90 M (34% (w/w)); 11.64 M (36% (w/w)). Taste: Taste threshold: 1.60 x 10 <sup>-4</sup> moles/l (recognition in water, chemically pure); 1.30 x 10 <sup>-4</sup> M/l (recognition in water, chemically pure); 1.10 x 10 <sup>-4</sup> M/l (recognition in water, chemically pure).

**10. Stability and reactivity**

<b>Chemical Stability</b>	Stable at normal temperatures, pressures and conditions of use or storage.
<b>Conditions to Avoid</b>	Metals, excess heat and incompatible materials.
<b>Incompatible Materials</b>	Metals, bases (e.g. sodium hydroxide, amines), aldehydes, epoxides, reducing agents, oxidizing agents, permanganates, explosives, acetylides, borides, carbides, silicides, cyanides, sulfides and phosphide.
<b>Hazardous Decomposition Products</b>	Hydrogen chloride gas. Hydrogen chloride is thermally stable up to temperatures of about 1500 °C.
<b>Possibility of hazardous reactions</b>	Large amounts of heat can be released when concentrated HCl is mixed with water or with organic solvents. Can react with most metals, generating flammable hydrogen gas. Reacts violently with bases (e.g. sodium hydroxide, amines), generating heat and pressure. Reaction with aldehydes, or epoxides may cause violent polymerization, generating heat and pressure. Reaction with reducing agents may produce heat, fire and flammable hydrogen gas.



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May react with oxidizing agents, generating heat and toxic or corrosive chloride gases.  
 Contact with explosives may generate heat which could cause detonation.  
 May react with acetylides, borides, carbides, silicides, producing flammable gas (e.g., acetylene).  
 May react with cyanides, or sulfides to release toxic gas (HCN or H<sub>2</sub>S).  
 May react with phosphide to release toxic, flammable phosphine gas.

**11. Toxicological Information**

<b>Ingestion</b>	May be fatal if swallowed. Corrosive! HCl solutions can cause immediate pain, severe irritation, severe corrosive burns, or ulceration to mouth, throat and gastrointestinal tract. Risk of perforation in the oesophagus and stomach. Symptoms may include difficulty in swallowing, intense thirst, salivation, nausea, vomiting (with 'coffee ground' emesis), diarrhoea, abdominal pain, strictures and stenosis (oesophageal, gastric, pyloric), peritonitis, gastric haemorrhage and infection, chills, fever, central nervous system effects (uneasiness, excitement), cardiovascular effects (weak rapid pulse, tachycardia), respiratory effects (shallow respiration, lung injury due to aspiration of acid (may be fatal)), urinary system effects (kidneys- renal failure, nephritis) and in severe cases, circulatory shock, cardiovascular failure (delayed), collapse and death. Can also cause erosion of tooth enamel.
<b>Inhalation</b>	May be fatal if inhaled. Corrosive! The severity of effects depends on the concentration of the solution and the duration of contact. In general, HCl solutions and mist with a pH of 3 or less are a significant health concern. Vapour irritates and may cause severe irritation or possible corrosive effects on the mucous membranes of the respiratory tract with inflammation of the nose, throat, and upper respiratory tract, sore throat, coughing, shortness of breath and delayed lung oedema. Exposure to the mist and vapour may erode exposed teeth. Vapour or mist from concentrated solutions can cause severe nasal irritation, sore throat, choking, coughing and difficulty breathing. Prolonged exposures can cause burns and ulcers to the nose and throat, necrosis of bronchial epithelium, constriction of the larynx and bronchi, nasal perforation, and glottal closure. Severe exposures (1000 to 2000 ppm and higher) for even a few minutes, can cause an accumulation of fluid in the lungs (pulmonary oedema), circulatory failure, and death. Symptoms of pulmonary oedema such as shortness of breath can be delayed for several hours after the exposure. May affect the liver.
<b>Skin</b>	Strongly corrosive! Contact with liquid is corrosive and causes severe burns and ulceration. The severity of injury depends on the concentration of the solution and the duration of exposure. Concentrated solution causes deep ulcers and skin discolouration. Hydrochloric acid liquid can cause severe irritation (redness, swelling, and pain) and corrosive skin damage with permanent scarring (or even death). High vapour or mist concentration may cause redness, irritation and burns to skin if contact is prolonged. Skin covered by perspiration-dampened clothing can also be affected.
<b>Eye</b>	Strongly corrosive! Low concentrations of vapour or mist can be immediately irritating, causing redness. Concentrated vapour, mist or splashed liquid can cause severe irritation, conjunctivitis, burns (may be severe), and irreversible eye damage (corneal necrosis). Risk of blindness! May cause painful sensitization to light.
<b>Carcinogenicity</b>	Hydrochloric acid [7647-01-0] is evaluated in the IARC Monographs (Vol. 54; 1992) as Group 3: Not classifiable as to carcinogenicity to humans.
<b>Chronic Effects</b>	Repeated exposure to low concentrations of HCl acid mist or vapour may cause bleeding of nose and gums, damage to the mucous membranes, and brownish discolouration and damage to tooth enamel. Dental erosion becomes more severe with increased exposure. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Prolonged exposure may cause dyspnoea, chronic bronchitis, chemical pneumonitis and pulmonary oedema. Chronic stomach pain (gastritis) has also been reported. May cause damage to the kidneys, liver, or circulatory system. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated exposure to low concentrations of acid solutions, mist or vapour can cause redness, swelling and pain (dermatitis). Long term exposures seldom occur due to the corrosive properties of the acid. Prolonged exposure may cause conjunctivitis, photosensitization, and possible blindness.
<b>Mutagenicity</b>	No human information is available. Questionable positive results reported in some short-term tests. Negative results in some in-vitro mammalian cell tests.

**12. Ecological information**

<b>Ecotoxicity</b>	Toxic for aquatic organisms. Toxic effect on fish and plankton. Harmful effect due to pH shift. Forms corrosive mixtures with water even if diluted. Damage to plant growth. Does not cause biological oxygen deficit.
<b>Environmental Protection</b>	Do not allow to enter waters, waste water, or soil!

**13. Disposal considerations**



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**Disposal Considerations** Dispose of according to relevant local, state and federal government regulations.

**14. Transport information**

**Transport Information** Dangerous goods of Class 8 (Corrosive) are incompatible in a placard load with any of the following: Class 1, Class 4.3, Class 5, Class 6, if the Class 6 dangerous goods are cyanides and the Class 8 dangerous goods are acids, Class 7; and are incompatible with food and food packaging in any quantity.

**U.N. Number** 1789

**UN proper shipping name** HYDROCHLORIC ACID

**Transport hazard class(es)** 8

**Hazchem Code** 2R

**Packaging Method** 3.8.8RT8

**Packing Group** II

**EPG Number** 8A1

**IERG Number** 40

**15. Regulatory information**

**Regulatory Information** Listed in the Australian Inventory of Chemical Substances (AICS).

**Poisons Schedule** S6

**16. Other Information**

**Literature References** 'Standard for the Uniform Scheduling of Medicines and Poisons No. 15', Commonwealth of Australia, November 2016.  
Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley and Sons, Inc., NY, 1997.  
National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.', 2007.  
Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals', 2011.  
Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand, 2010.  
Safe Work Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]'.  
Safe Work Australia, 'Hazardous Substances Informing System, 2005'.  
Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances (2011)'.  
Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995) 3rd Edition]'.  
**Contact Person/Point** Paul McCarthy Ph. (08) 8440 2000 **DISCLAIMER STATEMENT:**  
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**Empirical Formula & Structural Formula** Cl·H; HCl·H<sub>2</sub>O; HCl·3H<sub>2</sub>O; HCl·6H<sub>2</sub>O. (There are four constant-crystallization eutectic points for hydrochloric acid, between the crystal form of HCl·H<sub>2</sub>O (68% HCl), HCl·2H<sub>2</sub>O (51% HCl), HCl·3H<sub>2</sub>O (41% HCl), HCl·6H<sub>2</sub>O (25% HCl), and ice (0% HCl). There is also a metastable eutectic point at 24.8% between ice and the HCl·3H<sub>2</sub>O crystallization.)  
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