RHONDA INDUSTRIAL CO.,LIMITED
ADD:ROOM 1607 TREND CENTRE 29-31 CHEUNG LEE STREET CHAI WAN HK
TEL:00852-29738324 FAX:00852-21153613

MATERIAL SAFETY DATA SHEET

1、Identification of the chemical and supplier

1.1 Product identifier

Product Name: POOL-AIO
N,N-Dimethyl-2-hydroxypropylammonium chloride polymer COMPOUND
Product Model: /

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

Relevant identified uses: For the purification and maintenance of swimming pool water.
Uses advised against: Please consult manufacturer.

1.3 Details of the supplier of the Safety Data Sheet

Name of the company:RHONDA INDUSTRIAL CO.,LIMITED
Address of the company:ROOM 1607 TREND CENTRE 29-31 CHEUNG LEE STREET CHAI WAN HK

Telephone number:00852-29738324
Fax number:00852-21153613
Zip code:999077

1.4 Emergency phone number:/

2、 Hazards identification

2.1 Hazard classification according to GHS:

The product is not dangerous and it has no hazardous classification.

2.2 Label elements

Hazard pictograms: None.
Signal word:None.

2.3 Hazard statements:

None.

2.4 Precautionary statements

2.4.1 Prevention

None.

2.4.2 Response

None.

2.4.3 Storage

None.

2.4.4 Disposal

None.

2.5 Hazard description

2.5.1 Physical and chemical hazards

This product is normally used without hazard.

2.5.2 Health hazards

None.

2.5.3 Environmental hazards

Please refer to 12th chapter of SDS.

3、 Composition/mformation on ingredients

Prepation

Component	CAS No.	Content(%)
Polyhydroxypropyl dimethyl ammonium chloride	25988-97-0	10
Other Compounds	/	0.005∽0.002
Water	7732-18-5	89.9995∽89.9980

4、 First aid measures

4.1 Description of first aid measures

General advice: Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.

Skin contact:Rinse with clean water,Ensure that you understand the relevant personal protection knowledge,Take precautions to protect themselves.

Eye contact:Wash with running water or saline,Seek medical attention if necessary.

Inhalation :Move to fresh air,Keep the airway open,Seek medical attention if you feel unwell.

Intake: Clean up the mouth, induce vomiting, seek medical attention.

Protecting of first-aiders: Ensure that medical personnel are aware of the substance involved. Tak e precautions to protect themselves and prevent spread of contamination.

4.2 Indication of any immediate medical attention and special treatment needed

1、 Treat symptomatically.

2、Symptoms may be delayed.

5、 Firefighting measures

5.1 Extinguishing media

1、 Suitable extinguishing media:Water,alcohol-resistant foam,dry powder,carbon dioxide.

2、 Unsuitable extinguishing media: No data available

5.2 Specific hazards arising from the substance or mixture

1、No data available.

5.3 Advice for firefighters

1、 As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.

2、 Fight fire from a safe distance, with adequate cover.

3、 Prevent fire extinguishing water from contaminating surface water or the ground wate

6、 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

1、Emergency personnel wear positive pressure self-contained breathing apparatus. Wear protective and anti-static clothing. Wear chemical impermeable gloves.

2、 Ensure adequate ventilation. Remove all sources of ignition.

3、 Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

4、 Use personal protective equipment. Avoid breathing vapours, mist, gas or dust.

6.2 Environmental precautions

1、Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

1、 Adhered or collected material should be promptly disposed o£in accordance with appropriate laws and regulations.

2、 Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7、Handling and storage

7.1 Precautions for handling

1、Closed operation, full ventilation.

2、 Operators must be specially trained to strictly abide by the operating procedures.

3、 It is recommended that operators wear self-priming filter dust masks and chemical safety glasses.

4、 Keep away from fire, heat, and smoking in the workplace.

5、 Use explosion-proof ventilation systems and equipment.

7.2 Precautions for storage

1、Store in a cool, ventilated warehouse.

2、 Keep away from fire and heat.

3、 It should be stored separately from oxidants, reducing agents, halogens, etc., and should not be mixed.

8、Exposure controls/personal protection

8.1 Control Parameters

8.1.1 Occupational exposure limits Occupational Exposure limit values

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		PPm	mg/m³	PPm	mg/m³
All components	USA-OSHA	Unspecified	Unspecified	Unspecified	Unspecified
	South Korea	Unspecified	Unspecified	Unspecified	Unspecified
	Ireland	Unspecified	Unspecified	Unspecified	Unspecified
	Germany (AGS)	Unspecified	Unspecified	Unspecified	Unspecified
	Denmark	Unspecified	Unspecified	Unspecified	Unspecified
	Australia	Unspecified	Unspecified	Unspecified	Unspecified

8.1.2 Biological limit values

Biological limit values:No information available

8.1.3 Monitoring methods

1、EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

2、BZ/T 160.1 ∽GBZ/T 160.81-2004 Determination of toxic substances in workplace standard).

8.2 Engineering controls

1、.Ensure adequate ventilation, especially in confined areas.

2、Ensure that eyewash stations and safety showers are close to the workstation location.

3、Use explosion-proof electrical/ventilating/lighting/equipment.

4、Set up emergency exit and necessary risk-elimination area.

8.3Personal protection equipment

General require:

Eye protection: Tightly fitting safety goggles (approved by EN 166(EU) or NIOSH (US).

Hand protection: Wear protective gloves (such as butyl rubber) , passing the tests according to EN 374(EU),US F739 orAS/NZS 2161.1 standard.

Respiratory protection: Wear ordinary protective masks.

Skin and body protection: Wear ordinary protective clothing.

Other protection: Smoking, eating and drinking are forbidden on the job site. Maintain good hygiene habits.

9、 Physical and chemical properties

Appearance: Blue t ransparent Liquid.
Odor: Weak odor.
Odor threshold: No data available.
PH value: No data available.
Melting point/freezing point (°C) :No data available.
Initial boiling point and boiling range (°C) :No data available.
Flash point (closed cup, °C) :>70.
Evaporation rate:No data available.
Flammability (solid or gas) :Non-flammable.
Explosion upper/lower limit [%(v/v)]:No data available.
Vapor pressure (kPa) :No data available.
Vapor density (air = 1) :No data available.
Relative density (water = 1) :No data available.
Solubility (mg/L) :No data available.
Octanol/water partition coefficient: No data available.
Auto-ignition temperature (°C) :No data available.
Decomposition temperature (°C) :No data available. **Viscosity:**No data available.
Others:No data available.

10、Stability and Reactivity

Reactivity: Contact with incompatible materials can cause decomposition or other chemical reactions.
Chemical stability: Stable under the correct conditions of use and storage.

Possibility of hazardous reactions: No data available.
Conditions to avoid: Electrostatic discharge, heat, humidity, etc.
Incompatible materials: Strong oxides, strong acids, strong bases.
Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11、Toxicological information

11.1 Acute toxicity

	(Rat)	(Rabbit)	(Mice)
All components	No data available	No data available	No data available

11.2 Carcinogenicity

Component	IARC	NTP
All components	Not Listed	Not Listed

11.3 Others

Component	Corrosive skin/ irritation	Serious eye damage/irritation	Skin sensitization	Respiratory sensitization	Reproductive toxicity	Specific target organ toxicity- single exposure	Specific target organ toxicity- repeated exposure	Aspiration hazard	Germ cell mutagenicity	Reproductive toxicity
All components	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available

12、Ecological information

12.1 Acute aquatic toxicity

Component	Fish	Crustaceans	Algae
All components	Not available	Not available	Not available

12.2 Chronic aquatic toxicity

Component	Fish	Crustaceans	Algae
All components	Not available	Not available	Not available

12.3 Others

Component	Persistence and degradability	Bioaccumulation or bioaccumulation	Soil mobility	Evaluation of PBT and vPvB results
All components	Not available	Not available	Not available	Not available

13、Disposal considerations

Disposal considerations: Recycle as much as possible.

Waste chemicals: Contaminated packaging: Residual hazards may still exist after the contents of the packaging are emptied. Keep away from heat and sources of ignition. If possible, recycle them to the supplier for recycling.

Disposal considerations: Refer to the "Disposal" section.

14、Transportation information

Suggestion according to IMO IMDG Code (2020 Edition) ,the substance is not subject to IMO IMDG Code.

United Nations Dangerous Goods Number (UN No.): The product is not dangerous.

UN proper shipping name: None

UN Risk Classification :None

Packing Category: None

Packaging label:None

Marine Pollutants (Yes/No): No

Packing method:Pack according to the manufacturer's recommendations.

Transportation Note: No data available.

15、Regulatory information

International chemical inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECL	AICS
Polyhydroxypropyl dimethyl ammonium chloride	Not Listed	Listed	Listed	Listed	Listed	Listed	Listed	Listed
Food coloring bright blue	Listed	Listed	Listed	Listed	Listed	Listed	Listed	Listed
Water	Listed	Listed	Listed	Listed	Listed	Listed	Listed	Listed

[EINECS] European Inventory of Existing Commercial Chemical Substances

[TSCA] United States Toxic Substances Control Act Inventory

[DSL] Canadian Domestic Substances List
[IECSC] China Inventory of Existing Chemical Substances
[NZIoC] New Zealand Inventory of Chemicals
[PICCS]Philippines Inventory of Chemicals and Chemical Substances
[KECL] Korea Existing Chemical List
[AICS] Australia Inventory of Chemical Substances

16、Others

16.1 Reference:

[1] IPCS:The International Chemical Safety Cards (ICSC),website:http://www.ilo.org
[2] IARC,website:http://www.iarc.fr
[3] OECD:The Global Portal to Information on Chemical Substances,website:http//:www.echemportal.org
[4] CAMEO Chemicals,website:http://cameochemicals.noaa.gov
[5] NLM:ChemIDplus?website:http://chem.sis.nlm.nih.gov
[6] EPA:Integrated Risk Information System,website:http://cfpub.cpa.gov
[7] U.S. Department of Transportation:ERG,website:http://www.phmsa.dot.gov
[8] Germany GESTIS-database on hazard substance,website:http://gestis-en.itrust.de

16.2 Others:

1、 Abbreviations and acronyms

CAS-Chemical Abstracts Service
PC-STEL- Short term exposure limit
DNEL-Derived No Effect Level
RPE-Respiratory Protective Equipment
LC50-Lethal Concentration 50%
NOEC-No Observed Effect Concentration
PBT-Persistent, Bioaccumulative,Toxic
BCF-Bioconcentration factor (BCF)
IMDG-Intemational Maritime Dangerous Goods
UN-The United Nations
NFPA-National Fire Protection Association
CMR-Carcinogens, mutagens or substances toxic to reproduction
PC-TWA -Time Weighted Average
lARC-Intemational Agency for Research on Cancer
PNEC-Predicted No Effect Concentration
LD50-Lethal Dose 50%
EC50-Eflective Concentration 50%
POW-Partition coefficient OctanokWater
vPvB-very Persistent,very Bioaccumulative
ICAO/IATA-IntemationalCivil Aviation Organization/Intemational Air Transportation Association
ACGIH-American Conference of Governmental Industrial Hygienists
OECD-Organization for Economic Co-operation and Development

2、 Disclaimer

This Safety Data Sheet (SDS) was prepared according to UN GHS (the 9th revised edition). The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

END

SDS Effective Date:2023/07/03 (Valid in the year)

MATERIAL SAFETY DATA SHEET

(HYDROCHLORIC ACID)

I. PRODUCT IDENTIFICATION

Chemical Name	: Hydrochloric Acid
Trade Name	: Technical Grade Muriatic Acid
Synonyms	: Muriatic Acid, Spirit of Salts

II. COMPOSITION / INGREDIENTS

Hydrochloric Acid, %	: 32 – 34 % by weight
Chemical Formula	: HCl
Molecular Weight	: 36.46 g/mole
CAS Registry No.	: 7647-01-0

III. HAZARDS IDENTIFICATION

THIS PRODUCT MAY BE : corrosive, toxic and a major potential hazard upon contact to skin, eyes and respiratory tract.

TOXICITY ROUTES OF EXPOSURE :

Ingestion can cause severe burns of the mucous membranes of the mouth, esophagus and stomach; pain, nausea and vomiting may also occur.

Inhalation causes irritation of the upper respiratory tract resulting in cough, burning of the throat and choking sensation.

Skin contact to a high concentration of the HCl gas or liquid may cause burns; repeated or prolonged exposures to dilute solutions may cause dermatitis.

Eye exposure to high concentration of the acid can cause eye irritation to severe destruction like prolonged or permanent visual impairment, including blindness. These effects occur rapidly affecting all parts of the eye. Mist can also cause irritation to destructive burns.

OVEREXPOSURE :Can cause serious damage to all body tissues contacted.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Fumes may aggravate eye, skin or respiratory conditions. Effects are usually limited to inflammation and occasionally ulceration of the nose, throat and larynx, if inhaled deeply, pulmonary edema may occur.

MATERIAL SAFETY DATA SHEET

(HYDROCHLORIC ACID)

IV. FIRST AID MEASURES

SKIN	: Remove contaminated clothing and immediately wash skin for a minimum of 15 minutes. Call or see a physician.
EYES	: Immediately flush eyes with large amount of water. Occasionally lifting the upper and lower eyelids and rotating the eyeballs. Continue flushing for a minimum of 15 minutes. Call a physician.
INHALATION	: Remove to fresh air. If breathing stops, administer artificial respiration. Call a physician.
INGESTION	: DO NOT induce vomiting. Rinse or wash mouth with water. If person is conscious, give 2 or more glasses of water. If unconscious, never give anything by mouth. See a physician immediately.

V. FIRE FIGHTING MEASURES

Autoignition Point	: Not Applicable
Flash Point	: Not Applicable
Flammability/Explosive limits	: Not Applicable
Fire/Explosion Hazards	: Emits toxic and choking fumes of hydrogen chloride. Hydrochloric acid is not flammable but flammable and explosive hydrogen gas may be formed on contact with metals.
Fire Extinguishing Media	: Not Applicable

VI. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR RELEASE	:Move people from the area. Move upwind. Avoid contact with acid. Stop leaks if safe to do so. Reposition container if this will reduce or stop leakage. If leak continues, remove leaking container from vehicle or move other materials from vehicle away from container. Absorb spill with sand or earth. If available, cover the spill with excess soda ash, lime or sodium bicarbonate, otherwise, wash away with large amounts of water. Scoop slurry to plastic drums. If leak cannot be safely stopped or if contents cannot be safely transferred to a sound container, contact fire brigade.

MATERIAL SAFETY DATA SHEET
(HYDROCHLORIC ACID)

VII. HANDLING AND STORAGE

Storage Requirements	: Keep container tightly closed.
FOR SMALL VOLUMES	: Maybe stored in plastic jugs, carboys, and plastic drums.
FOR LARGE VOLUMES	: Store in rubber-lined or epoxy lined steel storage tanks or fiber glass reinforced polyester (FRP) tanks.
Incompatible Materials	: Store away from heat
Use Instructions	: Wear suitable protective clothing, gloves and eye/face protection. In case of insufficient ventilation, wear suitable respiratory equipment.

VIII. EXPOSURE CONTROLS AND PROTECTION

Ventilation	: Use only in well-ventilated areas. Protective Equipment for the eyes and skin : Splash proof and face shield goggles, disposable latex/ rubber apron, PVC rain suit, rubber boots with pant legs over boots.
Respiratory Protection Requirements	: NIOSH/MSHA approved respirator should be used.
Precautionary Hygiene/control measures	:Avoid contact with skin, eyes, and clothing. Do not breathe mist or vapor. Wash thoroughly after handling. Safety showers and eye wash fountains should be available in storage and handling area. Any protective clothing contaminated with hydrochloric acid should be removed immediately and thoroughly laundered before wearing again.

IX. PHYSICAL AND CHEMICAL PROPERTIES

STATE	**:** fuming liquid
APPEARANCE	: colorless to slightly yellow
ODOR	: Irritating
pH	: Strong acid <1
BOILING POINT	: 850 C
FLASH POINT	: Not determined
SPECIFIC GRAVITY	: 1.150 -1.164
VAPOR PRESSURE	: 20 hPa @ 200 C
SOLUBILITY IN	: WATER: miscible, BASE : miscible

MATERIAL SAFETY DATA SHEET

(HYDROCHLORIC ACID)

X. STABILITY AND REACTIVITY

Stability : Stable under normal handling conditions.
Hazardous polymerization will not occur.

Hazardous decomposition product
: HCl gas will not decompose.

Materials and conditions to avoid (incompatibility) are
: Avoid high temperatures. Containers may burst. Corrosive to most metals, concrete, some plastics, some rubber and coatings. Fumes forms droplets which settle and promote corrosion of metals and unprotected equipment.
Mixing with strong acids can cause evolution of hydrogen chloride gas. Oxidizing agents will cause the release of toxic chlorine gas. Contact of liquid acid or gas with alkali or active metal may develop enough heat to cause fire in adjacent combustible material.

XI. TOXICOLOGICAL INFORMATION

Reproductive Effects : No data available
MUTAGENICITY : Not applicable
CANCER INFORMATION : Not applicable

XII. ECOLOGICAL INFORMATION

ECOTOXICITY DATA : High acidity may pose potential hazard to plant and marine life.

WATER-POLLUTION RISK CLASSIFICATION
: Slightly waterpolluting substance.

XIII. DISPOSAL CONSIDERATIONS

Dispose of in accordance with all Government and Local regulations.

XIV. TRANSPORT INFORMATION

Transportation of Dangerous Goods

TDG Classification : Do not ship by air.
DOT Hazard Classification : Class 8 : Corrosive: Group II
DOT Shipping Name : Hydrochloric acid ID: UN 1789

MATERIAL SAFETY DATA SHEET
(HYDROCHLORIC ACID)

XV. REGULATORY INFORMATION
No data available

XVI OTHER INFORMATION

This MSDS contains information under the sixteen (16) section headings required by ISO 11014 "Safety Data Sheet for Chemical Products".

THE INFORMATION CONTAINED HEREIN IS PRESENTED IN GOOD FAITH AND BELIEVED TO CORRECT AS OF THE DATE OF ISSUE. HOWEVER, NO WARRANTY, EXPRESS OR IMPLIED IS GIVEN BY MABUHAY VINYL CORPORATION REGARDING THE USE OF THIS MATERIAL SAFETY DATA SHEET (MSDS) .

RHONDA INDUSTRIAL CO.,LIMITED
ADD:ROOM 1607 TREND CENTRE 29-31 CHEUNG LEE STREET CHAI WAN HK
TEL:00852-29738324 FAX:00852-21153613

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION

Product Name：Trichloroisocyanuric acid (TCCA)

Other Name：TCCA

Suggestion of Use and Use Restriction： Industrial water,swimming pool,restaurant ,hotel,public, family, hospital,egg and prevent fish disease and etc disinfection.

Supplier：RHONDA INDUSTRIAL CO.,LIMITED

ADD: ROOM 1607 TREND CENTRE 29-31 CHEUNG LEE STREET CHAI WAN HK

2.HAZARDS IDENTIFICATION

Articles hazard classification and national or regional information:

Oxidizing solids Class 2, Class 4 of the acute toxicity (oral),

a serious eye damage / eye irritation Category 2A

specific target organ toxicity - single exposure (respiratory tract irritation)3.

hazardous to the aquatic environment (acute) class 1

hazardous to the aquatic environment (chronic) class 1.

GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICAL,INCLUDING OF PRECAUTIONARY:

Signal word：Dangerous

Hazard Illustration：

May cause burn or explode,Oxidizing material,harmful if swallon,may cause risk of burn to mucous membranes,eyes and skin.

Protective measure：

Take a bathe and change cloth after working.

Wear protective gloves/wear protective clothing/wear protective glasses/wear protective mask.

Avoid inhalating powder/fume/gas/vapor/spray.

Only can be used outside or well-ventilated place./

If swallowed:call a posison center or doctor immediately,gargle.

If skin contact,get off the contaminate cloth immdediatelu,rinse skin with plenty of water /take a bathe.

The contaminated cloth could be used after washing.

If inhalated:Remove the victim to fresh air,keep breathing comfortably,and all the poison contral centre or doctor immidiately;

If eys contacted: Rinse with clean water for a few minutes .remove contact lenses if present and contine rinsing.

Depository must be locked,store in a well ventilated place and keepo the container close.

Depose the container: Bury safely,or return the container to the supplier or bury it in some place.

Does not lead to other risk classification (eg dust explosion hazard) or parts of the GHS covers other hazardous：/

3.COMPOSITION/INFORMATION OF INGREDIENT

Pure substance

Chemical name	CAS NO.	Composition
Trichloroisocyanuric acid	87-90-1	90 %

4.EMERGENCY MEASURES

Different measures of emergency

Inhalation：Remove to fresh air,If stop breathing,call the emergency centre and give artifical respiration.

Skin contact：Get off the cloth and rinse with plenty of water for 15 minutes,and see doctor.

Eye contact： Hold eye open and rinse gently and slowly with plenty of water for 10-15minutes.See a doctor.Remove the contact lenses if present and continue rinse with clean water. See a doctor.。

Ingestion：Call the poison center or doctor immdiately.

Protection for emergency person:ware breathing apparatus.

Mark out special treatment if seek medical care: If the patient has been unconscious,seek medical treatment immediately.

5.FIRE FIGHTER MEASURES

Suitable extinguishing media and unsuitable extinguishing media:Carbon dioxide or sand

Special danger chemical produced:Contianer may explide in hear of fire. With combustible, organic contact can inflammable, burning. The case of ammonia, ammonium salts, urea and other nitrogen compounds and water to generate the explosive nitrogen trichloride

Special protective equipment and precaution:Fire fighter should wear breathing apparatus,wear fire protective clothing.

6.ACCIDENTAL RELEASE MEASURE

Personal precaution,protection equipment and Emergency procedures：Suggest that the emergency worker should ware a respirator,ware protective overalls,do not contact the material directly.

Enviromental prcaution: Cut off the source as much as possible， prevent to enter into confined place.

Measures and materials for clean up:If small amount leakage,avoid dust,and use clean vaccum to collect material to dry,clean and covered container.,also could water the material down and put it into waste water systerm. If large amount leakage, collect and recycling or ship to waste treatment facility for procuring.

7.HANDING AND STORAGE

Safe handing precaution and protective measures:Closed operation,enhanced ventilation,and strictly abide by the rules.It is recommended that operators wear gas masks to wear the appropriate clothing,with anti-chemicalgloves and wear protective glasse,masks,no smoking in work place.

Safe storage condition:Store in a cool,dry,well ventilated warehouse,Keep far away from fire,heat and avoid sunlight;pack sealed,do not damp.It should be separated with oil,acid and other incompatible substance,do not mix.There should be proper container to collect the leaked material.

8.EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameter：/

Source	material	TWA Ppm	TWA mg/m3	STEL ppm	STEL mg/m3	peak ppm	peak mg/m3	TWA F/CC	Notes
Occupational health standards （Hongkong）	TCCA	0.5	1.5	1	2.9				
Workplace Hazardous Occupational Exposure Limits	TCCA			1					

Engineering controls: Strikly sealed,and provid adequate local ventilation

Personal protective equipment:：/

Personal protective equipment:

Protective eyeshade/masks: Respiratory system has been protective

Skin and body protection: Wear integral type protective clothing

Respiratory system protection: if any possible to contact with the powder,must wear the full-protective mask.,Emergency rescue or evacuation,should wear air ventilator.

9.THE PHYSICAL AND CHEMICAL PROPERTIES

Appearance(physical state,color and so on)：	White Powder
Smell：	Chlorine
Smell value	/
PH：	/
Melting point / freezing point：	>225℃ decompose
Initial boiling point and boiling point range：	/
Flash point	/
Evaporation rate:	/
Flammability(solid ,gas)	/
A upper and lower flammable limits or explosion limit：	/
Vapor presure：	/
Vapor density：	/
Relative density：	2.07g/cm3
Solubility：	25℃ 1.2g/100ml
Classification coefficient:n-octyl alcohol/water	0.26
Auto-ignition temperature	/
Decomposition temperature	＞225℃
Viscosity	/

10.STABILITY AND REACTIVITY

Reactive：/

Chemical stability：/

Possibility of hazardous reaction:/

Condition to avoid: /High fever, fire, moist air.Water

Incompatible substances and materials:Reducing agent， acid， moist air， Conflict with them the nature of flammable and explosive gases, liquids,reducing agent, ammonium salt, etc..Hazardous decomposition

products: Carbon monoxide, carbon dioxide, nitrogen oxides, hydrogen chloride.

11.TOXICOLOGICAL INFORMATION

Exposure measure: Ingestion,percutaneous absorption,eye contact

Relative symptoms of physical,chemical and toxicological characteristics:

Acute toxic effects: inhalation cause sore throat,coufhing,Skin contact can cause skin redness,pain and eye contact will cause redness,pain.Ingestion causes headache,dizziness,vomiting,abdomnal pain and other symptoms.

Chronic toxicity or long term toxic dffects：

Numerical measure of toxicity(such as acute toxicity estimates：

Danger	Irritating
According mouthLDLo(Lethal dose):3570mg/kg	Skin 500mg/24hr-middle
According skin LD50(Lethal dose)：406 mg/kg	Skin 500mg--Serious
Oral(Rabbit) LD:1900mg/kg	Eye 50ug/24hr Serious
According mouth LD50(Lethal dose):3570 mg/kg	Eye 3125 mg- middle

12.ECOLOGICAL INFORMATION

Ecotoxicity: The material is harmful to the enviroment,do not let the material into enviroment.

Persistence and degradability：high

Bioaccumulative：slight

Mobility in the soil：high

Other adverse effects: /

13.DESPOSAL CONSIDERSTIONS

Description of waste and disposal methods of waste(including the disposal of contaminated package):Security act,buried in france disposal.damaged container to prohibit the re-use,to be buried in a specified place

14.TRANSPORT INFORMATION

Un NO.: 2468

Transport name: Trichloroisocyanuric acid,Dry

Risk Class:5.1

Packing Group ：II

Marine pollutant（Yes/No）：Yes

Special pretective methods of user：

Rail transport should be strictly in accordance with dangerous goods in theMinistry of Railway Transport of Dangerous Goods Rules equipped withtable assembly. Separate shipment, during shipment to ensure that thecontainer does not leak, did not fall, do not fall, do not damage during transportation; transport vehicles should be equipped with appropriate types and quantities of fire-fighting equipment; strict with alkali, ammonium salts, flammable mix of organic compounds, reducing agents, spontaneous combustion, flammable wetlands goods and vehicles; transport speedshould not be too fast, should not be forced to overtake; accordance with the provisions of road transport routes. Before and after the loading and unloading of transport vehicles should be thoroughly cleaned, washed, is strictly prohibited mixed with organic material, combustibles and other magazines.

15.REGULATORY INFORMATION

Domestic chemical safety regulations: Yhe chemical safety Date sheet to comply with the following national standards:
GB16483-2008,GB13690-2009,GB6944-2005,GB/T15098-2008.GB18218-2009,GB15258-2009,GB6944-2005, GB190-2009,GB191-2009,GB12268-2008,GA57-1993,GB/T15098-2008,GBZ2-2007 and related laws and regulations:" Railway Dangerous Goods Transport Management Rules","Safety of Dangerous Chemical Regulations","The United Nations Recommendation on the Transport of Dangerous goods

16.OTHER INFORMATION

Reference UN"RECOMMENDATION ON THE TRANSPORT OF DANGEROUS GOODS.MODEL REGULATION
UN"GLOBAL CHEMICALS HARMONIZED CLASSIFICATION AND LABELING SYSTEM
Date 2020-05-08

QINGDAO KINGNOD GROUP CO.,LTD.

SPECIFICATION

Product name: Calcium Hypochlorite (sodium process)

Molecular formula: Ca(OCl)2

CAS NO.:7778-54-3

Form:White or offwhite granules or tablets

Molecular weight: 142.98

Available chlorine: >70%，>65%

Water content: 5.5-10%

Chlorine lose on stability test: 10% MAX

Uses: Calcium Hypochlorite is a chlorine source,which when mixed with water forms hypochlorous acid and Calcium Hydroxide.The hypochlorous form is used for public health treatments such as:the sanitization of drinking water,sewage,waste water,swimming pools and spas;industrial fruit and vegetable washing;and surface sanitization of meat and poultry plants.

Material Safety Data Sheet (MSDS)

Sodium Bisulphate

1. Product Identification

COMMODITY: SODIUM BISULPHATE
CAS No.: 7681-38-1
Formula: NaHSO4

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2. Composition/Information on Ingredients

Ingredient	CAS No
Sodium bisulphate	7681-38-1

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3. Hazards Identification

Harmful by inhalation, ingestion and skin contact.

Eye, skin and respiratory irritant. Prolonged or repeated exposure may cause allergic reaction

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4. First Aid Measures

First Aid Skin Immediately remove contaminated clothing, including shoes.
Flush body with plenty of water for at least 15 minutes.

First Aid Eyes Flush eyes with water for 15 minutes.
Hold eyelids open while washing.

First Aid Ingested Not applicable.

First Aid Inhalation Immediately remove to fresh air. Have victim lie down and warm.

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5. Fire Fighting Measures

Fire:
Not considered to be a fire hazard.
Explosion:
Not considered to be an explosion hazard.
Fire Extinguishing Media:
Use any means suitable for extinguishing surrounding fire.
Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. Cautiously spray residue with plenty of water.

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7. Handling and Storage

Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities. observe all warnings and precautions listed for the product.

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8. Exposure Controls/Personal Protection

Occupational Exposure — No Exposure Limits Established
The control measures appropriate for a particular worksite depend on how

this material is used and on the extent of exposure.
The best protection is to enclose operations and/or provide local exhaust ventilation at the site of chemical release.
Use a non-sparking, grounded ventilation system separates from other exhaust ventilation systems.
Exhaust directly to the outside.
Supply sufficient replacement air to make up for air removed.
Have a safety shower/eye wash fountain readily available in the immediate work area.

Personal Protection If engineering controls and work practices are not effective in controlling this material, then wear suitable personal protection equipment, including chemical safety goggles & face shield, boots, imperious gloves, coveralls & respiratory protection.

Have appropriate equipment available for use in emergencics.

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9. Physical and Chemical Properties

White odourless crystals or powder
Melting point ca. 180 deg C PH
(1.2% solution): 1.3
Solubility: 28g/100ml water

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10. Stability and Reactivity

Conditions to Avoid In contact with water, an acid, corrosive solution is formed.
Incompatible Materials Acid solutions react with many metals forming hydrogen

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11. Toxicological Information

Dust- very irritating to respitory system and skin when wet.

12. Ecological Information

Properties similar to sulphuric acid
Daphmia magna CE50 48 hrs: 190mg/l

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13. Disposal Considerations

Disposal Method Product	There are no uniform EC regulations for the disposal of Chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact the authorities in charge or approved waste disposal companies with advise you on how to dispose of special waste.
Disposal Method Packaging	Disposal in accordance with local legal provisions.

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14. Transport Information

Suitable for any mode of transport inc1uding by Road, Rail, Sea & Air.

15. Regulatory Information

EEC Hazard Classification
Risk Phases R41 Risk of serious damage to eyes
Safety Phases S2 Keep out of reach of children
S24 Avoid contact with skin
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advise

16. Other Information

Reason for Alteration: General update.

The information contained herein is based on the present state of our knowledge.

It characterizes the product with regard to the appropriate safety precautions.

It does not represent a guarantee of the propemess of the product.

MATERIAL SAFETY DATA SHEET (M.S.D.S)

THE DATA GIVEN HERE IS BASED ON CURRENT KNOWLEDGE ANDEXPERIENCE WITH LABORATORY TESTS. THE PURPOSE OF THIS MATERIAL SAFETY DATA SHEETIS TO DESCRIBE THE PRODUCTS IN TERMS OF THEIR SAFETY REQUIREMENTS. THE DATA DOES NOT SIGNIFY ANY WARRANTY WITH REGARD TO THE PRODUCT PROPERTIES.

1. CHEMICAL PRODUCTS AND COMPANY IDENTIFICATION

REFINED INDUSTRIAL SALT (POOL SALT)

(Sodium Chloride or Nacl are other known names as)

(Usage : For Water Softening Purpose – Industrial Use Only)

CONCORD OVERSEAS - MANUFACTURER

PLOT NO. 174, WARD 6 INDUSTRIAL,

DIST – KUTCH, GANDHIDAM, GUJARAT – 370 201, INDIA.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Calcium as Ca	:	0.016	%
Magnesium as Mg	:	0.012	%
Sulphate as So4	:	0.013	%
Sodium Chloride as Nacl*	:	99.74++	%
Moisture	:	0.142	%
Water Insoluble	:	0.016	%

3. HAZARDS IDENTIFICATION

EYES: CONTACT MAY CAUSE TRANSIENT EYE IRRITATION

SKIN: LOW HAZARD FOR USUAL INDUSTRIAL HANDLING

INGESTION: PERMITTED FOOD ADDITIVE. INGESTION OF LARGEAMOUNT MAY CAUSE DIGESTIVE TRACT IRRITATION.

INHALATION: MAY CAUSE RESPIRATORY TRACT IRRITATION.

CHRONIC: NOT AVAILABLE.

4. FIRST-AID MEASURES

EYES: CONTAMINATION OF THE EYES MUST BE TREATED BYTHROUGH IRRIGATION WITH WATER, WITH THE EYELIDSHELD OPEN. EVENTUALLY A DOCTOR (OR EYE SPECIALIST) SHOULD BE CONSULTED.

SKIN: WASH SKIN WITH PLENTY OF WATER.

INGESTION:GIVE ANTACID AND MILK AFTER INGESTION OF LARGEAMOUNTS.

INHALATION: REMOVE FROM EXPOSURE TO FRESH AIR IMMEDIATELY.

IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING ISDIFFICULT, GIVE OXYGEN.

NOTES TO PHYSICIAN: TREAT SYMPTOMATICALLY.

5. FIRE-FIGHTING MEASURES

GENERAL INFORMATION: DOES NOT BURN READILY. AS IN ANY FIRE,WEAR A SELFCONTAINED BREATHING APPARATUS IN PRESSURE DEMAND MSHA/NIOSH (APPROVED OR EQUIVALENT), AND FULL PROTECTIVE GEAR.

EXTINGUISHING MEDIA: NO RESTRICTION.

AUTOIGNITION TEMPERATURE: NOT AVAILABLE.

FLASH POINT: NOT AVAILABLE.

EXPLOSION LIMITS: NOT AVAILABLE.

6. ACCIDENTAL RELEASE MEASURES

GENERAL INFORMATION: USE PROPER PERSONAL PROTECTIVEEQUIPMENT AS INDICATED IN EXPOSURE CONTROL/ PERSONAPROTECTION CLAUSE. SPILLS/LEAKS: TAKE UP MECHANICALLY, AVOID DUST FORMATION.RINSE AWAY RESIDUE WITH PLENTY OF WATER.

7. HANDLING AND STORAGE

HANDLING: AVOID BREATHING DUST, VAPOR, MIST, OR GAS. AVOIDCONTACT WITH SKIN AND EYES.

STORAGE: NON-TOXIC. KEEP CONTAINER DRY IN A COOLAND WELLVENTILATEDPLACE. NO SPECIAL MEASURES REQUIRED.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

EYES PROTECTION: WEAR APPROPRIATE PROTECTIVE EYEGLASSESOR CHEMICAL

SAFETY GOGGLES AS DESCRIBED BY OSHA'S EYE ANDFACE PROTECTION REGULATION IN 29 CFR 1910.133 OR EUROPEANSTANDARD EN166.

SKIN PROTECTION: WEAR APPROPRIATE PROTECTIVE RUBBERGLOVES TO PREVEN SKIN EXPOSURE. AVOID PROLONGED SKINCONTACT. WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENTSKIN EXPOSURE.

RESPIRATORY PROTECTION: IF PRODUCT FORMS DUST, WEAR DUCTPROTECTION MASK, AVOID INHALING DUST. FOLLOW THE OSHARESPIRATOR REGULATIONS FOUND IN 29CFR 1910. 134 OR EUROPEANSTANDARD EN 149. ALWAYS USE A NIOSH OR EUROPEAN STANDARDEN 149 APPROVED RESPIRATOR WHEN NECESSARY.

ENGINEERING CONTROLS: USE ADEQUATE VENTILATION TO KEEPAIRBORNE CONCENTRATIONS LOW.

9. PHYSICAL AND CHEMICAL PROPERTIES

MOLECULAR FORMULA: NaCl (SODIUM CHLORIDE)

MOLECULAR WEIGHT: 58.5

FORM: POWDER

COLOR: WHITE

ODOR: ODORLESS

MELTING POINT: 801° C

VISCOSITY: NOT AVAILABLE BOILING POINT (Decomposes): 1413° C VAPOR PRESSURE NEGLIGIBLE: N.A.

LOG P OCTANOL/WATER -3.0

SOLUBILITY IN WATER, g/100ml at 20° C: 37

RELATIVE DENSITY (WATER=1): 2.2

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: STABLE UNDER NORMAL TEMPERATURES ANDPRESSURES.

CONDITION TO AVOID: MAY DELIQUESCE IN THE WET AIR AND MAYLUMP UNDER A CERTAIN PRESSURE OR IN THE HIGH TEMPERATURECONDITION. AFTER A LONG-TIME EXPOSURE IN THE OPENINGENVIRONMENT, THE MATERIAL MAY DECOMPOUND AND BE YELLOWY.

INCOMPATIBILITIES WITH OTHER MATERIALS: ALKALE SCENCEMATERIALS.
THERMAL DECOMPOSITION: BEGINS TO CHAR AT 170HAZARDOUS
DECOMPOSITION PRODUCTS: PRODUCTS NOTDETERMINED

11. TOXICOLOGICAL INFORMATION

WITH MANY YEARS OF EXPERIENCE IN THE PRODUCTION AND USEOF THE PRODUCT NO EFFESTS DETRIMENTAL TO HEALTH ARE KNOWN.LO50 (ORAL) 11, 700 MG/KG TESTED IN RATS

12. ECOLOGICAL INFORMATION

ECOTOXICITY: NOT AVAILABLE.

BOD5 AND COD: NOT AVAILABLE.

PRODUCT OF BIODEGRATION:

POSSIBLY HAZARDOUS SHORT TERM DEGRADATION PRODUCTS ARE NOT LIKELY. HOWEVER, LONG TERM DEGRADATION PRODUCTS MAY ARISE.

TOXICITY OF THE PRODUCTS OF BIODEGRADATION: THE PRODUCTS ITSELF AND ITS PRODUCTS OF DEGRADATION ARE NOT TOXIC.

13. DISPOSAL CONSIDERATIONS

WASH TO DRAIN WITH COPIOUS QUANTITIES OF WATER ORNEUTRALISE WITH LIME OR SODIUM HYDROXIDE BEFORE DISPOSAL TODRAIN. FULLY BIODEGRADABLE. WATER SOLUBLE. DRY WASTEPRODUCTS LANDFILL OR INCINERATE. DISPOSE OF IN A MANNERCONSISTENT WITH LOCAL REGULATIONS.

14. TRANSPORT INFORMATION

DOT CLASIFICATION: NOT A DOT CONTROLLED MATERIAL (UNITED STATES).
IDENTIFICATION: NOT APPLICABLE.
SPECIAL PROVISIANS FOR TRANSPORT: NOT APPLICABLE.

15. OTHER REGULATORY INFORMATION

FEDERAL AND STATE REGULATIONS: TSCA 8(b) INVENTORY: SODIUM CHLORIDE OTHER REGULATIONS: EINECS: THIS PRODUCT IS ON THE EUROPEAN INVENTORT OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES.

OTHER CLASIFICATION:

WHMIS (CANADA): NOT CONTROLLED UNDER WHMIS (CANADA).

DSCL (EEC):

R40- POSSIBLE RISKS OF IRREVERSIBLE EFFECTS. S24/25- AVOID CONTACT WITH SKIN AND EYES.

HMIS (U.S.A.):

HEALTH HAZARD: 1

FIRE HAZARD: 0

REACTIVITY: 0

PERSONAL PROTECTION: E

NATIONAL FIRE PROTECTION ASSOCIATION (U.S.A.):

HEALTH: 1

FLAMMABILATY: 0

REACTIVITY: 0

SPECIAL HAZARD:

PROTECTIVE EQUIPMENT:

GLOVES. LAC COAT. DUST REPRIRATOR. BE SURE TO USE AN APPROVED/ CERTIFIED RESPRIRATOR OR EQUIVALENT. SPLASH GOGGLES.

16. OTHER INFORMATION

HAWLEY, G.G... THE CONDENSED CHEMICAL DICTIONARY, 11E ED., NEW YORK ., VAN NOSTRAND REINOLD, 1987. -SAX, N.I.

DANGAREOUS PROPERTIES OF INDUSTRIAL MATERIALS. TORONTO, VAN NOSTRAND REINOLD, 6E ED. 1984.- THE SIGMA- ALDRICH LIBRARY OF CHEMICAL SAFETY DATA, EDITION

OTHER SPECIAL CONSIDARATIONS: NOT AVAILABLE.

**** THE END ****

QINGDAO KINGNOD GROUP CO.,LTD.

MATERIAL SAFETY DATE SHEET(MSDS)

Aluminium Sulphate（Flocculant water treatment）

Section 1: Chemical Product and Company Identification

Product Name: Aluminium Sulphate,
CAS#: 10043-01-3
RTECS: Not available.
TSCA: TSCA 8(b) inventory: No products were found.
Synonym: Aluminium sulphate Flocculent
Chemical Name: Aluminium sulphate Flocculent
Chemical Formula: Al2(SO4)3.
Company name:Qingdao Kingnod Group Co.,ltd.
Contact Information:+86-532-66060752
CHEMTREC (24HR Emergency Telephone)call: +86-532-66060752
International CHEMTREC call:
For non-emergency assistance call: +86-15863099230
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Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Aluminium Sulphate, Hydrated (ACS &FCC)	**10043-01-3**	**100**

Toxicological Data on Ingredients: Aluminium Sulphate, Hydrated (ACS & FCC):
ORAL (LD50): Acute: >9000 mg/kg [Mouse]. >9000 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation (lung irritant). Slightly hazardous
in case of ingestion.
Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male
[SUSPECTED].
The substance may be toxic to the reproductive system, mucous membranes, skin, eyes, Urinary System.

Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at
least 15 minutes. Cold water may be used. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove
contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes
before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical
attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get
medical attention.

Serious Inhalation: Not available.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an
unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if
symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available.

Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:

It may burn, but it will not ignite.

Fire may produce irritating, corrosive and/or toxic gases.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:

Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label.

Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:

Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent.

Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used

to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist
BEFORE handling this product.
Exposure Limits:
TWA: 2 (mg (Al)/m) from ACGIH (TLV) [United States]
TWA: 2 (mg (Al)/m) [United Kingdom (UK)]
Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Crystals solid.)
Odor: Odorless.
Taste: Sweet. Mildly Astringent.
Molecular Weight: 342.14 g/mole + (14-18)H2O
Color: White.
pH (1% soln/water): 3.
Boiling Point: Not available.
Melting Point: Not available.
Critical Temperature: Not available.
Specific Gravity: Density: 1.69 @ 17 deg. C(Water = 1)
Vapor Pressure: Not applicable.
Vapor Density: Not available.
Volatility: Not available.
Odor Threshold: Not available.
Water/Oil Dist. Coeff.: Not available.
Ionicity (in Water): Not available.
Dispersion Properties: See solubility in water.
Solubility:
Easily soluble in hot water.
Soluble in cold water.
It will hydrolyze in water to form sulfuric acid.
Insoluble in alcohol.
Solubility in water: 86.9 g/ 100 ml @0 deg. C; 1104 g/100 ml @ 100 deg. C

Section 10: Stability and Reactivity Data

Stability: The product is stable.
Instability Temperature: Not available.
Conditions of Instability: Incompatible materials, moisture
Incompatibility with various substances: Reactive with oxidizing agents.
Corrosivity: Non-corrosive in presence of glass.
Special Remarks on Reactivity: It melts when gradually heated; At 250 deg. C, it loses its water.

Special Remarks on Corrosivity: May corrode metals in the presence of moisture
Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.
Toxicity to Animals: Acute oral toxicity (LD50): >9000 mg/kg [Rat].
Chronic Effects on Humans:
DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male
[SUSPECTED].
May cause damage to the following organs: the reproductive system, mucous membranes, skin, eyes, Urinary
System.
Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of inhalation (lung irritant).
Slightly hazardous in case of ingestion.
Special Remarks on Toxicity to Animals: Not available.
Special Remarks on Chronic Effects on Humans:
May affect genetic material (mutagenic).
May cause adverse reproductive effects based on animal test data
Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects:
Skin: Causes skin irritation, particularly if moisture is present. Symptoms include redness, itching, and pain
Eyes: Causes eye irritation. Symptoms include redness and pain.
Inhalation: Causes mouth and respiratory tract irritation. Symptoms may include coughing, shortness of breath.
It may cause airway constrictin in rare instances. Symptoms are usually transient.
Ingestion: May cause irritation to the gastrointestinal tract. Symptoms may include cramping, nausea, vomiting, diarrhea. Ingestion also produces a feeling of dryness and puckering of the mucous membranes of the mouth and throat. It may affect behavior/central nervous system and cause ataxia and seizures. High blood concentrations of aluminum may cause aluminum-induced encephalopathy with confusion, lethargy, respiratory depression, cognitive impairment, dysarthria, asterixis, seizure, coma. It may also affect the liver. Individuals with renal failure，may more readily accumulate toxic levels of aluminum which can result in encephalopathy and seizures.
Chronic Potential Health Effects:
Skin: Repeated or prolonged skin contact may cause irritation, especially if moisture is present.
Ingestion: Repeated or prolonged ingestion may affect metabolism, urinary system, blood (changes in serum

composition - e.g. TP, bilirubin, cholesterol), skeletal system, and brain (degenerative changes). High blood
concentrations of aluminum may cause aluminum to be deposited in the bones. Accumulation of aluminum in the bone appears to reduce the positive effects of vitamin D adn may prevent calcium deposition into the bones. The prevention of calcium deposition leads to the return of the calcium to the blood. This may cause bone/skeletal abnormalties, osteomalacia, painful joints. The elevated serum calcium levels in turn inhibit the release of parathyroid hormone by the parathyroid glands.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:

Connecticut hazardous material survey.: Aluminium sulfate anhydrous (CAS no. 10043-01-3)

Illinois chemical safety act: Aluminium sulphate anhydrous (CAS no. 10043-01-3)

New York release reporting list: Aluminium sulphate anhydrous (CAS no. 10043-01-3)

Pennsylvania RTK: Aluminium sulphate anhydrous (CAS no. 10043-01-3)

Massachusetts RTK: Aluminium sulphate anhydrous (CAS no. 10043-01-3)

Massachusetts spill list: Aluminium sulphate anhydrous (CAS no. 10043-01-3)

New Jersey: Aluminium sulphate anhydrous (CAS no. 10043-01-3)

New Jersey spill list: Aluminium sulphate anhydrous (CAS no. 10043-01-3)

Louisiana spill reporting: Aluminium sulphate anhydrous (CAS no. 10043-01-3)

California Director's List of Hazardous Substances: Aluminium sulphate anhydrous (CAS no. 10043-01-3)-

CERCLA: Hazardous substances.: Aluminium sulphate anhydrous (CAS no. 10043-01-3)-: 5000 lbs. (2268 kg).
No Regulatory information found for Aluminium sulphate hydrate (CAS no. 17927-65-0)
Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
Other Classifications:
WHMIS (Canada):
CLASS D-2B: Material causing other toxic effects (TOXIC).
Aluminium Sulphate anhydrous (CAS no. 10043-01-3) is on the Canadian DSL.
Aluminium Sulphate hydrate (Cas no. 17927-65-0) is not on the Canadian DSL.
DSCL (EEC):
R36/37/38- Irritating to eyes,
respiratory system and skin.
S24/25- Avoid contact with skin and eyes.
S36/37/39- Wear suitable protective clothing,
gloves and eye/face protection.
HMIS (U.S.A.):
Health Hazard: 2
Fire Hazard: 0
Reactivity: 0
Personal Protection: E
National Fire Protection Association (U.S.A.):
Health: 2
Flammability: 0
Reactivity: 0
Specific hazard:
Protective Equipment:
Gloves.
Lab coat.
Dust respirator. Be sure to use an
approved/certified respirator or
equivalent. Wear appropriate respirator
when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

pH: 3.0
VISCOSITY:NA
CAS NO:10043-01-3
CLASS: Not regulated
HS CODE:2833 2200

References:

The Sigma-Aldrich Library of Chemical Safety Data, Edition II.

-SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984.

-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987.

Other Special Considerations: Not available.

Created: 10/09/2007 03:40 PM

Last Updated: 11/06/2014 12:00 PM

MATERIAL SAFETY DATA SHEET

< Soda Ash >

1. CHEMICALS AND COMPANY IDENTIFICATION

Product Name: Sodium Carbonate

COMMERCIAL PRODUCT NAME: Soda Ash

H.S.CODE ： 28362000

Company: WEIFANG RUIDESHENG CHEMICAL CO.,LTD.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Characterization : Na_2CO_3

Molecular Weight :105.99

3. HAZARD IDENTIFICATION

Harzards identification irritating to eyes.

4. FIRST AID MEASURES

Symptoms and Effects : Irritating to eyes.

Skin : Remove all contaminated clothing immediately.
Wash off with plenty of water.

Eyes : Rinse immediately and as long as possible with plenty of water.

Ingestion : Rinse mouth.

5. FIRE FIGHTING MEASURES

The product is not flammable.

6. ACCIDENTAL RELEASE MEASURES

Environmental Precautions : No special environmental precautions.

Methods for Cleaning up : Sweep up and shovel.

7. HANDLING AND STORAGE

Handing : Avoid dust formation

Shelf Life:36 month (in dry and hermetic condition)

Storage Requirements : Store in a dry place.
Do not store together with acids.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Hand : Wear suitable gloves

Eye : Safety goggles

Skin and body : Protective clothing

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Granules

Colour : White

Odour : Odourless
Boiling Point/Range : 1570 ℃ melting
Point/Range : 845 ℃
Flash Point : N.
App. Flammability : N. FLA.
Autoignltion Temperature : N. APP.
Explosive Roperties : None known
Explosion Limits : N. APP.
Oxidizing Properties : None known
Vapour Pressure : N. AVA.
Density : 1750 KG/CBM (20 ℃)
Bulk Density : 726 KG/CBM
Solubility in Water : 332 G/L (35.4℃)
Solubility in Other Solvents : Not available
PH Value : 11.7 (in 111 G/L water, at 20℃)

10. STABILITY AND REACTIVITY

Stability : Stable under normal conditions.
Condition to Avoid : Reacts strongly with acids to form carbon dioxide.
Contact with lime and moisture form caustic soda.
Materials to Avoid : Aluminium and Zinc.
Hazardous Decomposition Products : Toxic turnes of Na_2O

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Oraf LD50 Rat : 2800 MG/KG (LIT)
Inhalation IC50 Rat : 3940 MG/L (2 hours) MAX.
Attainable Concentration Irritation Eye : Irritating to eye

12. ECOLOGICAL INFORMATION

Ecotoxicity Fate Degradation Abiatic： The product increases the PH
(water, soil).

13. WASTE DISPOSAL

Product: Waste disposal in accordance with regulations comtaminated
Packageing: Waste disposal in accordance with regulations,contact the manufacturer about recycling.

14. TRANSPORT INFORMATION

LAND TRANSPORT
Adr Class : Not restricted
Adr Class: Not relevant
Rid Class : Not restricted D
Rid Class: Not relevant
Hazard Identification NO. : None
Substance Identification NO. : None

TREM-CARD : Not relevant

UN NO. : None

Proper Shipping Name : Not restricted

SEA TRANSPORT

UN NO.: None

Class : Not relevant

Packing Group: None

EMS : Not

Relevant MFAG : Not relevant

Proper Shipping Name : Not restricted

AIR TRANSPORT

ICAD : Not restricted

15. REGULATORY INFORMATION

This product is nit a hazardous article and need not be labelled

16. OTHER INFORMATION

This information only concerns the above mentionedproduct and does not need to be valid if used with other product(s) or in any process,The informationis to our best present knowledge correct and complete and is given in good faith but withoutwarranty, It remains the user's own responsibilityto make sure that the information is appropriateand complete for his special use of this product.

Material Safety Data Sheet

Product Name: SODIUM HYPOCHLORITE SOLUTION

Revision date: R1-01/08/2017

Section1: Manufacturer and Substance Identification:

CHEMFAB ALKALIS LIMITED
Gnanananda place
Kalapet
Puducherry- 605014
India.

Product Name: Sodium Hypochlorite

CAS#: Mixture.7681-52-9

UN#: 1791

Emergency Contact number:0413- 2655111
Email: chemfabalkalis@drraoholings.com
Website:www.chemfabalkalis.com
AMAI CERN NO (Emergency Toll Free No): 1800-11-1735

SECTION 2: Composition/Information on ingredients

Composition:

Name	CAS #	% by Weight
Sodium hypochlorite Sodium hydroxide water	7681-52-9	**9 - 10** **1-2** **Balance**

Toxicological Data on Ingredients: Sodium hypochlorite: ORAL (LD50): Acute: 5800 mg/kg

SECTION 3: Hazard identification

Health Effects:

Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, Hazardous in case of skin contact (corrosive), of eye contact (corrosive). Slightly hazardous in case of inhalation (lung sensitizer).

SECTION 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

SECTION 5: Fire Fighting Measures

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: combustible materials, metals, organic materials

Explosion Hazards in Presence of Various Substances:
Slightly explosive in presence of open flames and sparks. Non-explosive in presence of shocks.

Fire Fighting Media and Instructions: Not applicable.

SECTION 6: Accidental Release Measures

Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

SECTION 7: Handling and Storage

Precautions:
Keep locked up. Keep container dry. Keep away from heat. Keep away from sources of ignition. Keep away from combustible material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice

immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as reducing agents, combustible materials, organic materials, metals, acids.

Storage:
Keep container in a cool, well-ventilated area. Keep away from acids, reducing agents and combustibles.

SECTION 8: Exposure Controls/Personal Protection:

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:
Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
Sodium hypochlorite TWA: 1.0, STEL: 1.0 (ppm as Cl2) from (TLV)

SECTION 9: Physical and Chemical Properties.

Physical state and appearance: Liquid.

Odor **:** Characteristic. Chlorine-like (Slight.)

Taste: Not available.

Molecular Weight: Not applicable.

Color: light Greenish yellow

pH (1% solution/water): Alkaline

Critical Temperature: Not available.

Specific Gravity: (Water = 1) **1.18**

Vapor Pressure: 2.3 kPa (@ 20°C)

Vapor Density: The highest known value is 0.62 (Air = 1) (Water).

Volatility: Not available.

Solubility: Easily soluble in cold water.

SECTION 10: Stability and Reactivity.

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials. light, air, heat

Incompatibility with various substances: Reactive with reducing agents, combustible materials, organic materials, metals, acids.

Corrosively:
Extremely corrosive in presence of aluminum. Corrosive in presence of stainless steel (304), of stainless steel(316). Non-corrosive in presence of glass.

SECTION 11: Toxicological Information.

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

EFFECTS: Contains material which may cause damage to the following organs: lungs, mucous membranes, skin, eyes.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant), of ingestion, Hazardous in case of skin contact (corrosive), of eye contact (corrosive). Slightly hazardous in case of inhalation (lung sensitizer, lung corrosive).

Special Remarks on other Toxic Effects on Humans:
Potential Health Effects: Can cause severe irritation and possible burns to skin and eyes. Eye contact may also cause corneal and conjunctival edema, conjunctival hemorrhages.

SECTION 12: Ecological Information.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

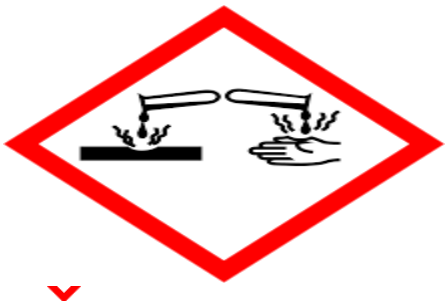
SECTION 13: Disposal Consideration.

Waste Disposal:
Dilute with water and flush to sewer of local ordinances allow otherwise, whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Waste must be disposed of in accordance with federal, state and local environmental control regulations.

SECTION 14: Transport Information:

DOT Classification: Class 8: Corrosive material

Corrosive Symbol:



SECTION 15: Regulatory Information:

Protective Equipment:
Gloves, Full suit,Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

SECTION 16: Other Information:

The Information provided in this MSDS is given in good faith and is correct to the best of our knowledge and information at the date of Publication. It is designed only a guidance of safe handling, transportation, use and disposal. No Warranty is expressed or implied.

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Revision History:

Revision	Effective date	Changed Date