

SAFETY DATA SHEET

According to 29 CFR 1910.1200 Hazard Communication Standard 2012 (HazCom 2012)

CTION 1: Identification		
Product identifier		
Product name	Acid Starch Indicator Powder	
Product number	R-0725; R-0725-PL	
Recommended use and restrictions	To be used in accordance with manufacturer instructions or under the direct guidance of th manufacturer.	
Manufacturer	Taylor Technologies, Inc. 31 Loveton Circle Sparks, MD 21152 Phone: (410) 472-4340 Emergency phone: (800) 837-8548	
CTION 2: Hazard(s) identifi	cation	
Physical hazards	Corrosive to metals	Category 1
Health hazards	Eye damage/irritation	Category 1
	Skin corrosion/irritation	Category 1B
Environmental hazards	No data available	
Label elements Hazard pictograms		
Signal word	Danger	
Hazard statements	May be corrosive to metals. Causes severe	skin burns and eye damage.
Precautionary statements		
Prevention	Keep only in original container. Do not breathe dusts or mists. Wash skin thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection if contact likely to occur.	
	incery to occur.	
Response	IF SWALLOWED: Rinse mouth. Do NOT in immediately all contaminated clothing. Rins before reuse. IF INHALED: Remove person Immediately call a physician or poison contri	duce vomiting. IF ON SKIN (OR HAIR): Take off e skin with water. Wash contaminated clothing to fresh air and keep comfortable for breathing. rol center. IF IN EYES: Rinse cautiously with wate s if present and easy to do. Continue rinsing. rol center.
Response Storage	IF SWALLOWED: Rinse mouth. Do NOT in immediately all contaminated clothing. Rins before reuse. IF INHALED: Remove person Immediately call a physician or poison contri for several minutes. Remove contact lenses Immediately call a physician or poison contri	e skin with water. Wash contaminated clothing to fresh air and keep comfortable for breathing. rol center. IF IN EYES: Rinse cautiously with wate if present and easy to do. Continue rinsing. rol center. corrosive-resistant inner liner. Keep tightly capped
	IF SWALLOWED: Rinse mouth. Do NOT in immediately all contaminated clothing. Rins before reuse. IF INHALED: Remove person Immediately call a physician or poison contri for several minutes. Remove contact lenses Immediately call a physician or poison contri Store in corrosive-resistant container with a	e skin with water. Wash contaminated clothing to fresh air and keep comfortable for breathing. rol center. IF IN EYES: Rinse cautiously with wate s if present and easy to do. Continue rinsing. rol center. corrosive-resistant inner liner. Keep tightly cappe 5°F. Store locked up.

Mixture			
Chemical name	Common name and synonyms	CAS number	% w/w
Sulfamic acid	Amidosulfonic acid	5329-14-6	75–85
Starch	Maltodextrin	9050-36-6	15–25
COTION A. First status			

SECTION 4: First-aid measures

If inhaled

Remove individual to fresh air. Seek medical attention if breathing becomes difficult or if respiratory irritation develops. Give oxygen or artificial respiration if needed.

In case of skin contact

Immediately flush skin with plenty of water for at least 20 minutes. If clothing comes in contact with the product, the clothing should be removed and laundered before reuse. Seek medical attention if irritation develops. Chemical burns must be treated by a physician.

In case of eye contact

Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

If swallowed

Call a physician or poison control center immediately. Rinse mouth. Never give anything by mouth to a person who is unconscious or is having convulsions. Do NOT induce vomiting unless directed by physician. If vomiting occurs, keep head low so that stomach content does not get into the lungs.

Most important symptoms and effects, both acute and delayed

Refer to section 2 and/or section 11 of the SDS for the most important known symptoms and effects.

Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep person under observation. Symptoms may be delayed.

General information

Ensure medical personnel are aware of the material(s) involved and take precautions to protect themselves.

SECTION 5: Firefighting meas	ures
Extinguishing media	
Suitable extinguishing media	Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	Do not use a heavy water stream. Use of heavy stream of water may spread fire.
Specific hazards arising from the Fire hazard	substance or mixture Not flammable
Explosion hazard	Not explosive
Reactivity	May be corrosive to metals
Hazardous combustion products	Carbon oxides, hydrogen chloride, sulfur oxides. Other irritating fumes and smoke.
Advice for firefighters	
Precautionary measures	Exercise caution when fighting any chemical fire; hazardous fumes will be present.
Firefighting equipment/instructions	Use water spray or fog for cooling exposed containers.
Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	Refer to section 9 of the SDS for flammability properties.

SECTION 6: Accidental release measures

Personal precautions, protective equipment, and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during cleanup. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protective equipment, refer to section 8 of the SDS

Environmental precautions

Avoid discharge into drains, watercourses, or onto the ground.

Methods and material for containment and cleaning up

Dike the spilled material where this is possible. Stop leak if it can be done without risk. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth, and place into containers. Prevent entry into waterways, sewers, basements, or confined areas. Following product recovery, flush area with water. Dilute acid with water and neutralize with dilute base. If not recoverable, dilute with water or flush to holding area and neutralize. Contaminated absorbent material may pose the same hazards as the spilled product. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Reference to other sections

For exposure controls and personal protection, refer to section 8 of the SDS. For waste disposal, refer to section 13 of the SDS.

SECTION 7: Handling and storage

Personal precautions, protective equipment, and emergency procedures

Do not breathe dust. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. For personal protective equipment, refer to section 8 of the SDS. Keep away from incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

Conditions for safe storage, including any incompatibilities

Store in corrosive-resistant container with a corrosive-resistant inner liner. Keep tightly capped. Store out of direct sunlight between 36°F–85°F. Store locked up. Store away from incompatible materials (refer to section 10 of the SDS).

SECTION 8: Exposure controls/personal protection

SECTION 8: Exposure contro	hs/personal protection		
Occupational exposure limits			
ACGIH Threshold Limit Values	ŝ		
Not regulated			
NIOSH: Pocket Guide to Chemical Hazards			
Not regulated			
OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)			
Not regulated			
Biological limit values			
No biological exposure limits noted	No biological exposure limits noted for the ingredient(s)		
Exposure controls			
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) 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. Eyewash facilities and emergency shower must be available when handling this product.		
Personal protective equipment			
Eye/face protection	Wear appropriate chemical safety goggles if contact is likely to occur.		
Skin protection	Wear appropriate chemical-resistant gloves and clothing if contact is likely to occur.		
Body protection	Wear appropriate protective clothing.		
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fumes at levels exceeding the		

exposure limits. Advice should be sought from respiratory protection suppliers.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid
Form	Powder
Color	Off-white
Odor	Odorless
Odor threshold	Not applicable
рН	Not applicable
Evaporation rate	Not applicable
Melting point	401°F (205°C)
Freezing point	Not applicable
Boiling point	Not applicable
Flash point	Not applicable
Auto-ignition temperature	Not applicable
Decomposition temperature	No data available
Flammability (solid, gas)	Not applicable
Vapor pressure	No data available
Relative vapor density	No data available
Solubility	Soluble in all proportions
Partition coefficient (n-octanol/water)	No data available
Viscosity	Not applicable
Explosive properties	Not applicable
Oxidizing properties	Not applicable

Reactivity	May be corrective to metale		
•	May be corrosive to metals Stable under recommended handling and storage conditions (refer to section 7 of the SDS)		
Chemical stability	Stable under recommended handling and storage conditions (refer to section 7 of the SDS)		
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use		
Conditions to avoid	Contact with incompatible materials. Do not use in areas without adequate ventilation.		
Incompatible materials	Chlorine, metal compounds, nitric acid, oxidizing agents, reducing agents, strong bases		
CTION 11: Toxicological in	formation		
Information on toxicological effe	ects		
Inhalation	May cause irritation to the respiratory system		
Skin contact	Causes severe skin burns		
Eye contact	Causes serious eye damage		
Ingestion Causes digestive tract burns		5	
Most important symptoms/effects, acute and	Direct skin contact may caus scarring.	se corrosive skin burns, deep ulcerations, and possibly permane	
delayed		ated solutions may be corrosive to the eyes and may cause seve s. Symptoms may include stinging, tearing, redness, swelling, an	
	Inhalation of dust can cause severe respiratory irritation. Symptoms may include coughing, choking, and wheezing. Inhalation could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed.		
	Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus, and possibly t digestive tract. Symptoms may include abdominal pain, vomiting, burns, perforations, bleedir		
Acute toxicity	This product is not classified as an acute toxicity hazard. See below for individual in acute toxicity data.		
Product Acid Starch Indicator Powder (CA Acute	Species	Acute Toxicity Estimate (ATE)	
Acid Starch Indicator Powder (CA Acute Dermal LD ₅₀		Acute Toxicity Estimate (ATE)	
Acid Starch Indicator Powder (CA Acute Dermal LD ₅₀ Inhalation LC ₅₀	AS Mixture)		
Acid Starch Indicator Powder (CA Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral	AS Mixture) Rabbit Rat	No data available No data available	
Acid Starch Indicator Powder (CA Acute Dermal LD ₅₀ Inhalation LC ₅₀	AS Mixture) Rabbit	No data available No data available >5000 mg/kg	
Acid Starch Indicator Powder (CA Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral	AS Mixture) Rabbit Rat	No data available No data available	
Acid Starch Indicator Powder (CA Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral LD ₅₀	AS Mixture) Rabbit Rat Rat	No data available No data available >5000 mg/kg	
Acid Starch Indicator Powder (CA Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral LD ₅₀ Components	AS Mixture) Rabbit Rat Rat	No data available No data available >5000 mg/kg	
Acid Starch Indicator Powder (CA Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral LD ₅₀ Components Sulfamic acid (CAS 5329-14-6)	AS Mixture) Rabbit Rat Rat	No data available No data available >5000 mg/kg	
Acid Starch Indicator Powder (CA Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral LD ₅₀ Components Sulfamic acid (CAS 5329-14-6) Acute	AS Mixture) Rabbit Rat Rat	No data available No data available >5000 mg/kg	
Acid Starch Indicator Powder (CA Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral LD ₅₀ Components Sulfamic acid (CAS 5329-14-6) Acute Dermal	AS Mixture) Rabbit Rat Rat Species	No data available No data available >5000 mg/kg Acute Toxicity Estimate (ATE)	
Acid Starch Indicator Powder (CA Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral LD ₅₀ Components Sulfamic acid (CAS 5329-14-6) Acute Dermal LD ₅₀	AS Mixture) Rabbit Rat Rat Species	No data available No data available >5000 mg/kg Acute Toxicity Estimate (ATE)	
Acid Starch Indicator Powder (C/ Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral LD ₅₀ Components Sulfamic acid (CAS 5329-14-6) Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral	AS Mixture) Rabbit Rat Rat Species Rat Rat	No data available No data available >5000 mg/kg Acute Toxicity Estimate (ATE) No data available No data available	
Acid Starch Indicator Powder (C/ Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral LD ₅₀ Components Sulfamic acid (CAS 5329-14-6) Acute Dermal LD ₅₀ Inhalation LC ₅₀	AS Mixture) Rabbit Rat Rat Species Rat	No data available No data available >5000 mg/kg Acute Toxicity Estimate (ATE) No data available	
Acid Starch Indicator Powder (C/ Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral LD ₅₀ Components Sulfamic acid (CAS 5329-14-6) Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral	AS Mixture) Rabbit Rat Rat Species Rat Rat	No data available No data available >5000 mg/kg Acute Toxicity Estimate (ATE) No data available No data available	
Acid Starch Indicator Powder (C/ Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral LD ₅₀ Components Sulfamic acid (CAS 5329-14-6) Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral LD ₅₀ Starch (CAS 9050-36-6) Acute	AS Mixture) Rabbit Rat Rat Species Rat Rat	No data available No data available >5000 mg/kg Acute Toxicity Estimate (ATE) No data available No data available	
Acid Starch Indicator Powder (C/ Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral LD ₅₀ Components Sulfamic acid (CAS 5329-14-6) Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral LD ₅₀ Starch (CAS 9050-36-6) Acute Dermal	AS Mixture) Rabbit Rat Rat Species Rat Rat Rat	No data available No data available >5000 mg/kg Acute Toxicity Estimate (ATE) No data available No data available 3160 mg/kg	
Acid Starch Indicator Powder (C/ Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral LD ₅₀ Components Sulfamic acid (CAS 5329-14-6) Acute Dermal LD ₅₀ Inhalation LC ₅₀ Oral LD ₅₀ Starch (CAS 9050-36-6) Acute	AS Mixture) Rabbit Rat Rat Species Rat Rat	No data available No data available >5000 mg/kg Acute Toxicity Estimate (ATE) No data available No data available	
Acid Starch Indicator Powder (C/ Acute Dermal LD_{50} Inhalation LC_{50} Oral LD_{50} Components Sulfamic acid (CAS 5329-14-6) Acute Dermal LD_{50} Inhalation LC_{50} Oral LD_{50} Starch (CAS 9050-36-6) Acute Dermal LD_{50} Inhalation	AS Mixture) Rabbit Rat Rat Species Rat Rat Rat	No data available No data available >5000 mg/kg Acute Toxicity Estimate (ATE) No data available No data available 3160 mg/kg	
Acid Starch Indicator Powder (C/ Acute Dermal LD_{50} Inhalation LC_{50} Oral LD_{50} Components Sulfamic acid (CAS 5329-14-6) Acute Dermal LD_{50} Inhalation LC_{50} Oral LD_{50} Starch (CAS 9050-36-6) Acute Dermal LD_{50}	AS Mixture) Rabbit Rat Rat Species Rat Rat Rat Rat	No data available No data available >5000 mg/kg Acute Toxicity Estimate (ATE) No data available No data available 3160 mg/kg No data available	

Respiratory or skin sensitization	No data available	
Germ cell mutagenicity	No data available	
Carcinogenicity		
IARC Monographs. Overall Eva Not classifiable	luation of Carcinogenicity	
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1096) Not regulated		
US National Toxicology Program	m (NTP) Report on Carcinogens	
Reproductive toxicity	No data available	
Specific target organ toxicity (single exposure)	No data available	
Specific target organ toxicity (repeated exposure)	No data available	

SECTION 12: Ecological information

This product is not classified as environmentally hazardous; however, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

SECTION 13: Disposal considerations

Collect and reclaim or dispose of in sealed containers at a licensed waste disposal site. Since emptied containers may retain product residue, follow label warnings even after container is emptied. This material and its container must be disposed of in a safe manner. Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

D	ОТ	
	UN number	UN2967
	UN proper shipping name	Sulphamic acid
	Transport hazard class(es)	
	Class	8
	Subsidiary risk	None
	Label(s)	8
	Packing group	III
	Environmental hazards	
	Marine pollutant	Not listed
	Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.
	Special provisions	IB8, IP3, TP1, TP33
	Packaging exceptions	154
	Packaging, non-bulk	213
	Packaging, bulk	240
L	ATA	
	UN number	UN2967
	UN proper shipping name	Sulphamic acid
	Transport hazard class(es)	
	Class	8
	Subsidiary risk	None
	Packing group	III
	Environmental hazards	
	Marine pollutant	Not listed
	ERG code	8L
	Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.

Other information	
Passenger and cargo aircraft max net quantity	25 kg
Cargo aircraft only	100 kg
IMDG	
UN number	UN2967
UN proper shipping name	Sulphamic acid
Transport hazard class(es)	
Class	8
Subsidiary risk	None
Packing group	III
Environmental hazards	
Marine pollutant	Not listed
EmS	F-A, S-B
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	This substance/mixture is not intended to be transported in bulk
DOT	

IATA; IMDG



ON 15: Regulatory info federal regulations	Jimadon		
CERCLA Hazardous Substa	nce (40 CFR 302.4)		
Not regulated			
OSHA Hazard Communication	on Standard (29 CFR 1910.1200)		
Chemical name	CAS number		
Sulfamic acid	5329-14-6		
	d Substances (29 CFR 1910.1001-1	096)	
Not regulated			
SARA 302 Extremely Hazard	ous Substance (40 CFR 355 Appe	ndices A / B)	
Not regulated			
SARA 304 Emergency Relea	se Notification		
Not regulated			
SARA 311/312 Hazardous Cl	hemical		
Chemical name	CAS number		
Sulfamic acid	5329-14-6		
SARA 313 (TRI reporting)			
Not regulated			
TSCA Section 8(b) Chemical	Inventory		
All components are on the l	J.S. EPA TSCA Inventory list.		
TSCA Section 12(b) Export N	Notification (40 CFR 707, Subpt. D)		
Not regulated			

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs)

Not regulated

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated

Safe Drinking Water Act (SDWA)

Not regulated

US state regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (California Proposition 65)

Not regulated

Massachusetts Right-to-Know Act

Not regulated

New Jersey Worker and Community Right-to-Know Act

Chemical name	CAS number
Sulfamic acid	5329-14-6

Pennsylvania Worker and Community Right-to-Know Act

Not regulated

Rhode Island Right-to-Know Act

Not regulated

SECTION 16: Other information

NFPA	Rating
NFFA	nauny

i FA Nauny	
Health hazard	2
Fire hazard	0
Reactivity	1
Specific	N/A

Disclaimer

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Issue date:

April 2015

Last revisions

November 2017



SAFETY DATA SHEET

According to 29 CFR 1910.1200 Hazard Communication Standard 2012 (HazCom 2012)

SECTION 1: Identification

Product identifier Product name	Barium Chloride Solution 20%
Product number	R-0711; R-0711-PL
Recommended use and restrictions	To be used in accordance with manufacturer instructions or under the direct guidance of the manufacturer.
Manufacturer	Taylor Technologies, Inc. 31 Loveton Circle Sparks, MD 21152 Phone: (410) 472-4340 Emergency phone: (800) 837-8548
SECTION 2: Hazard(s) id	entification

S

Physical hazards	No data available	
Health hazards	Acute toxicity, oral	Category 4
Environmental hazards	No data available	
Label elements Hazard pictograms	<u>(!)</u>	
Signal word	Warning	
Hazard statements	Harmful if swallowed	
Precautionary statements		
Prevention	Wash skin thoroughly afte	r handling. Do not eat, drink, or smoke when using this product.
Response	IF SWALLOWED: Call a p	physician or poison control center if you feel unwell. Rinse mouth.
Storage	Store out of direct sunligh	t between 36°F–85°F.
Disposal	Dispose of contents/conta	iner in accordance with local/regional/national/international regulations
	No data available	

Chemical name	Common name and synonyms	CAS number	%
Water	Dihydrogen oxide	7732-18-5	90
Barium chloride dihydrate	Not available	10326-27-9	20

If inhaled

Remove individual to fresh air. Seek medical attention if breathing becomes difficult or if respiratory irritation develops. Give oxygen or artificial respiration if needed.

In case of skin contact

Immediately flush skin with plenty of water for at least 20 minutes. If clothing comes in contact with the product, the clothing should be removed and laundered before reuse. Seek medical attention if irritation develops.

In case of eye contact

Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses if present and easy to do. Continue rinsing. If symptoms persist or in all cases of concern, seek medical advice.

If swallowed

Call a physician or poison control center immediately. Rinse mouth. Never give anything by mouth to a person who is unconscious or is having convulsions. Do NOT induce vomiting unless directed by physician. If vomiting occurs, keep head low so that stomach content does not get into the lungs.

Most important symptoms and effects, both acute and delayed

Refer to section 2 and/or section 11 of the SDS for the most important known symptoms and effects.

Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

General information

Ensure medical personnel are aware of the material(s) involved and take precautions to protect themselves.

SECTION 5: Firefighting measures

Extinguishing media Suitable extinguishing media	Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	Do not use a heavy water stream. Use of heavy stream of water may spread fire.
Specific hazards arising from the substance or mixture Fire hazard	Not flammable
Explosion hazard	Not explosive
Reactivity	Hazardous reactions will not occur under normal conditions.
Hazardous combustion products	No data available
Advice for firefighters	
Precautionary measures	Exercise caution when fighting any chemical fire; hazardous fumes will be present.
Firefighting equipment/instructions	Use water spray or fog for cooling exposed containers.
Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	Refer to section 9 of the SDS for flammability properties.

SECTION 6: Accidental release measures

Personal precautions, protective equipment, and emergency procedures

Wear appropriate protective equipment and clothing during cleanup. Local authorities should be advised if significant spillages cannot be contained. For personal protective equipment, refer to section 8 of the SDS.

Environmental precautions

Avoid discharge into drains, watercourses, or onto the ground.

Methods and material for containment and cleaning up

Ventilate the area. Stop leak if it can be done without risk. Dike the spilled material where this is possible. Stop leak if it can be done without risk. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand, or earth and place into containers. Prevent entry into waterways, sewers, basements, or confined areas. Following product recovery, flush area with water. Never return spills to original containers for reuse. Contaminated absorbent material may pose the same hazards as the spilled product. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Reference to other sections

For exposure controls and personal protection, refer to section 8 of the SDS. For waste disposal, refer to section 13 of the SDS.

SECTION 7: Handling and storage

Personal precautions, protective equipment, and emergency procedures

Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Wear appropriate personal protective equipment. For personal protective equipment, refer to section 8 of the SDS. Keep away from incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

Conditions for safe storage, including any incompatibilities

Store out of direct sunlight between 36°F-85°F. Store away from incompatible materials (refer to section 10 of the SDS).

SECTION 8: Exposure controls/personal protection

Occupational exposure limits

ACGIH Threshold Limit Values

Components	Туре	Value	Form
Barium chloride dehydrate (CAS 10326-27-9)	TWA	0.5 mg/m ³	Not applicable
NIOSH: Pocket Guide to Chemical Hazards			
Components	Туре	Value	Form
Barium chloride dehydrate (CAS 10326-27-9)	TWA	0.5 mg/m ³	Not applicable

Components		Туре	Value	Form
Barium chloride dihydrate (CAS 10326-27-9)	TWA	0.5 mg/m ³	Not applicable
Biological limit values	No biological expos	sure limits noted for th	ne ingredient(s)	
Exposure controls				
Appropriate engineering controls	be matched to cond engineering control limits have not been	ditions. If applicable, i is to maintain airborne n established, mainta	use process enclosures, lo e levels below recommend	I be used. Ventilation rates shou ocal exhaust ventilation, or other led exposure limits. If exposure ceptable level. Eyewash facilities luct.
Personal protective equipment				
Eye/face protection	Wear appropriate c	hemical safety goggle	es if contact is likely to occ	cur.
Skin protection	Wear appropriate c	hemical-resistant glo	ves and clothing if contact	is likely to occur.
Body protection	Wear appropriate p	rotective clothing.		
Respiratory protection	approved respirator	r if there is a risk of e	uitable respiratory equipm posure to dust/fumes at le piratory protection supplie	evels exceeding the exposure

SECTION 9: Physical and chemical properties

Information on basic physica and chemical properties	1
Physical state	Liquid
Form	Liquid
Color	Clear, colorless
Odor	Odorless
Odor threshold	No data available
рH	6.7
Evaporation rate	No data available
Melting point	No data available
Freezing point	No data available
Boiling point	212–215°F (100–101.7°C)
Flash point	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	No data available
Vapor pressure	17 mm Hg
Relative vapor density	0.6
Solubility	Soluble in all proportions
Partition coefficient (n-octanol/water)	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
SECTION 10: Stability and I	reactivity
Reactivity	Hazardous reactions will not occur under normal conditions.
Chemical stability	Stable under recommended handling and storage conditions (refer to section 7 of the SDS)
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use

Contact with incompatible materials. Do not use in areas without adequate ventilation.

SECTION 11: Toxicological information

Information on toxicological effects	
Inhalation	May cause

Conditions to avoid

Incompatible materials

May cause irritation to the respiratory system

Strong oxidizing agents

Skin contact	May cause slight or	mild transient irritatio	n	
Eye contact	May cause slight or	mild transient irritatio	n	
Ingestion	May cause irritation	May cause irritation, nausea, vomiting, and diarrhea		
Most important symptoms/effects, acute and	Direct skin contact r itching.	may cause slight or mi	ld transient irritation. Symptoms may include redness and	
delayed	Direct eye contact may cause slight or mild transient irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.			
	Inhalation of dust ca difficulties.	an cause respiratory in	ritation. Symptoms may include coughing and breathing	
	Ingestion may caus	e gastrointestinal irrita	tion, nausea, vomiting, and diarrhea.	
Acute toxicity	Harmful if swallowed toxicity data.	d. See below for acute	toxicity estimate (ATE) and individual ingredient acute	
Mixture		Species	Test Results	
Barium Chloride Solution 20% (CAS Mixture)			
Acute				
Oral				
LD ₅₀		Rat	750.02 mg/kg	
Components		Species	Test Results	
Barium chloride dihydrate (CAS	10326-27-9)			
Acute				
Oral				
LD ₅₀		Rat	150 mg/kg	
Respiratory or skin sensitization	No data available			
Germ cell mutagenicity	No data available			
Carcinogenicity	No data available			
Reproductive toxicity	No data available			
Specific target organ toxicity (single exposure)	No data available			
Specific target organ toxicity (repeated exposure)	No data available			
Aspiration hazard	No data available			

SECTION 12: Ecological information

This product is not classified as environmentally hazardous; however, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

SECTION 13: Disposal considerations

Collect and reclaim or dispose of in sealed containers at a licensed waste disposal site. Since emptied containers may retain product residue, follow label warnings even after container is emptied. This material and its container must be disposed of in a safe manner. Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

DOT	Not regulated as a dangerous good
ΙΑΤΑ	Not regulated as a dangerous good
IMDG	Not regulated as a dangerous good

SECTION 15: Regulatory information

U.S. federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SARA 313 (TRI Reporting)

Barium chloride dihydrate (CAS 10326-27-9)

U.S. state regulations

New Jersey Worker and Community Right-to-Know Act Barium chloride dihydrate (CAS 10326-27-9)

Pennsylvania Worker and Community Right-to-Know Act Barium chloride dihydrate (CAS 10326-27-9)

SECTION 16: Other information

NFPA Rating

Health hazard	1
Fire hazard	0
Reactivity	0
Specific	N/A

Disclaimer

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Issue date: May 2015

Last revisions July 2016



SAFETY DATA SHEET

According to 29 CFR 1910.1200 Hazard Communication Standard 2012 (HazCom 2012)

Product identifier			
Product name	Calcium Buffer		
Product number	R-0653-2; R-0653-2-PL		
Recommended use and restrictions	To be used in accordance with manufacturer.	manufacturer instructions or under the direct gui	dance of the
Manufacturer	Taylor Technologies, Inc. 31 Loveton Circle Sparks, MD 21152 Phone: (410) 472-4340 Emergency phone: (800) 837-8	548	
CTION 2: Hazard(s) ide	entification		
Physical hazards	Corrosive to metals	Category 1	
Health hazards	Eye damage/irritation	Category 1	
	Skin corrosion/irritation	Category 1B	
Environmental hazards	No data available		
Hazard pictograms			
Signal word	Danger		
Hazard statements	May be corrosive to metals. Ca	uses severe skin burns and eye damage.	
Precautionary statements			
Prevention		Do not breathe dusts or mists. Wash skin thorouve clothing/eye protection/face protection if contained	
Response	vomiting. IF ON SKIN (OR HAI water. Wash contaminated clot keep comfortable for breathing. Rinse cautiously with water for	erial damage. IF SWALLOWED: Rinse mouth. Do R): Take off immediately all contaminated clothin hing before reuse. IF INHALED: Remove person Immediately call a physician or poison control co several minutes. Remove contact lenses if prese call a physician or poison control center.	g. Rinse skin wi to fresh air and enter. IF IN EYE
Storage		tainer with a corrosive-resistant inner liner. Keep /een 36°F–85°F. Store locked up.	tightly capped.
Disposal	Dispose of contents/container i	n accordance with local/regional/national/international	tional regulations
Hazards not otherwise	No data available		
classified			
	n/information on ingredien	ts	
	n/information on ingredien	ts	

SECTION 4: First-aid measures

Dihydrogen oxide

Caustic soda

If inhaled

Sodium hydroxide

Water

Remove individual to fresh air. Seek medical attention if breathing becomes difficult or if respiratory irritation develops. Give oxygen or artificial respiration if needed.

7732-18-5

1310-73-2

70-80

20-30

In case of skin contact

Immediately flush skin with plenty of water for at least 20 minutes. If clothing comes in contact with the product, the clothing should be removed and laundered before reuse. Seek medical attention if irritation develops. Chemical burns must be treated by a physician.

In case of eye contact

Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

If swallowed

Call a physician or poison control center immediately. Rinse mouth. Never give anything by mouth to a person who is unconscious or is having convulsions. Do NOT induce vomiting unless directed by physician. If vomiting occurs, keep head low so that stomach content does not get into the lungs.

Most important symptoms and effects, both acute and delayed

Refer to section 2 and/or section 11 of the SDS for the most important known symptoms and effects.

Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep person under observation. Symptoms may be delayed.

General information

Ensure medical personnel are aware of the material(s) involved and take precautions to protect themselves.

SECTION 5: Firefighting measures

Extinguishing media Suitable extinguishing media	Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	Do not use a heavy water stream. Use of heavy stream of water may spread fire.
Specific hazards arising from the substance or mixture Fire hazard	Not flammable
Explosion hazard	Not explosive
Reactivity	May be corrosive to metals
Hazardous combustion products	Sodium oxides
Advice for firefighters	
Precautionary measures	Exercise caution when fighting any chemical fire; hazardous fumes will be present.
Firefighting equipment/instructions	Use water spray or fog for cooling exposed containers.
Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	Refer to section 9 of the SDS for flammability properties.
CTION C. Assistants I value	

SECTION 6: Accidental release measures

Personal precautions, protective equipment, and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during cleanup. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protective equipment, refer to section 8 of the SDS.

Environmental precautions

Avoid discharge into drains, watercourses, or onto the ground.

Methods and material for containment and cleaning up

Dike the spilled material where this is possible. Stop leak if it can be done without risk. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth, and place into containers. Prevent entry into waterways, sewers, basements, or confined areas. Following product recovery, flush area with water. Never return spills to original containers for reuse. Dilute base with water and neutralize with dilute acid. If not recoverable, dilute with water or flush to holding area and neutralize. Contaminated absorbent material may pose the same hazards as the spilled product. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Reference to other sections

For exposure controls and personal protection, refer to section 8 of the SDS. For waste disposal, refer to section 13 of the SDS.

SECTION 7: Handling and storage

Personal precautions, protective equipment, and emergency procedures

Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. For personal protective equipment, refer to section 8 of the SDS. Keep away from incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

Conditions for safe storage, including any incompatibilities

Store in corrosive-resistant container with a corrosive-resistant inner liner. Keep tightly capped. Store out of direct sunlight between 36°F–85°F. Store locked up. Store away from incompatible materials (refer to section 10 of the SDS).

	its			
ACGIH Threshold Limit Val	ues			
Components		Туре	Value	Form
Sodium hydroxide (CAS 1310-73-2)		Ceiling	2 mg/m ³	Not applicable
NIOSH: Pocket Guide to Ch	emical Hazards			
Components		Туре	Value	Form
Sodium hydroxide (CAS 13	310-73-2)	Ceiling	2 mg/m ³	Not applicable
OSHA Table Z-1 Limits for A	Air Contaminants (29 CFR 1910.1000)		
Components		Туре	Value	Form
Sodium hydroxide (CAS 13	310-73-2)	PEL	2 mg/m ³	Not applicable
Biological limit values	No biological ex	posure limits noted for the	e ingredient(s)	
	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates sho be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or othe engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eyewash facilitie and emergency shower must be available when handling this product.			
Appropriate engineering controls	be matched to c engineering con limits have not b	conditions. If applicable, us trols to maintain airborne been established, maintair	se process enclosures, l levels below recommen n airborne levels to an ac	ocal exhaust ventilation, or othe ded exposure limits. If exposure cceptable level. Eyewash facilitie
Appropriate engineering	be matched to c engineering con limits have not b	conditions. If applicable, us trols to maintain airborne been established, maintair	se process enclosures, l levels below recommen n airborne levels to an ac	ocal exhaust ventilation, or othe ded exposure limits. If exposure cceptable level. Eyewash facilitie
Appropriate engineering controls Personal protective	be matched to c engineering con limits have not b and emergency	conditions. If applicable, us trols to maintain airborne been established, maintair	se process enclosures, l levels below recommen n airborne levels to an ac when handling this proc	ocal exhaust ventilation, or othe ded exposure limits. If exposure cceptable level. Eyewash facilitie duct.
Appropriate engineering controls Personal protective equipment	be matched to c engineering con limits have not b and emergency Wear appropriat	conditions. If applicable, us trols to maintain airborne been established, maintair shower must be available	se process enclosures, I levels below recommen n airborne levels to an ac when handling this proc s if contact is likely to oc	ocal exhaust ventilation, or othe ded exposure limits. If exposure cceptable level. Eyewash facilitie duct.
Personal protective equipment Eye/face protection	be matched to c engineering con limits have not b and emergency Wear appropriat	conditions. If applicable, us trols to maintain airborne been established, maintair shower must be available te chemical safety goggle	se process enclosures, I levels below recommen n airborne levels to an ac when handling this proc s if contact is likely to oc	ocal exhaust ventilation, or othe ded exposure limits. If exposure cceptable level. Eyewash facilitie duct.

SECTION 9: Physical and chemical properties

Information on basic physical

nd chemical properties	
Physical state	Liquid
Form	Liquid
Color	Clear, colorless
Odor	Odorless
Odor threshold	No data available
рН	13.4
Evaporation rate	No data available
Melting point	No data available
Freezing point	No data available
Boiling point	2150°F (102°C)
Flash point	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	No data available
Vapor pressure	17 mm Hg
Relative vapor density	0.6
Solubility	Soluble in all proportions
Partition coefficient (n-octanol/water)	No data available
Viscosity	No data available
Explosive properties	No data available

Oxidizing properties	No data available				
SECTION 10: Stability and i	eactivity				
Reactivity	May be corrosive to metals				
Chemical stability	Stable under recommended handling and storage conditions (refer to section 7 of the SDS)				
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use				
Conditions to avoid	Contact with incompatible materials. Do not use in areas without adequate ventilation.				
Incompatible materials	Metal compounds, nitromethane, oxidizing agents, strong acids, and sugars				
SECTION 11: Toxicological	information				
Information on toxicological effects					
Inhalation	-	to the respiratory sys	tem		
Skin contact	Causes severe skin				
Eye contact	Causes serious eye	-			
Ingestion	Causes digestive tra				
Most important symptoms/effects, acute and	Direct skin contact may cause corrosive skin burns, deep ulcerations, and possibly permanent scarring.				
delayed	Direct contact with concentrated solutions may be corrosive to the eyes and may cause severe damage, including blindness. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.				
	Inhalation of mists can cause severe respiratory irritation. Symptoms may include coughing, choking, and wheezing. Inhalation could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed.				
	Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus, and possibly the digestive tract. Symptoms may include abdominal pain, vomiting, burns, perforations, bleeding.				
Acute toxicity	This product is not o toxicity data.	classified as an acute t	oxicity hazard. See below for individual ingredient acute		
Components		Species	Test Results		
Sodium hydroxide (CAS 1310-7	' 3-2)				
Acute					
Oral					
LD ₅₀		Rat	140–340 mg/kg		
Respiratory or skin sensitization	No data available				
Germ cell mutagenicity	No data available				
Carcinogenicity	No data available No data available				
Reproductive toxicity					
Specific target organ toxicity (single exposure)	No data available				
Specific target organ toxicity (repeated exposure)	No data available				
Aspiration hazard	No data available				
SECTION 12: Ecological inf					

SECTION 12: Ecological information

This product is not classified as environmentally hazardous; however, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

SECTION 13: Disposal considerations

Collect and reclaim or dispose of in sealed containers at a licensed waste disposal site. Since emptied containers may retain product residue, follow label warnings even after container is emptied. This material and its container must be disposed of in a safe manner. Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

DOT UN number UN1824 UN proper shipping name Sodium hydroxide solution

Transport hazard class(es) Class Subsidiary risk Label(s) Packing group Special precautions for user Special provisions Packaging exceptions Packaging, non-bulk Packaging, bulk	8 Not listed 8 II Read safety instructions, SDS, and emergency procedures before handling. A6, T14, TP2, TP27 Not listed 201 243
ΙΑΤΑ	
UN number	UN1824
UN proper shipping name	Sodium hydroxide solution
Transport hazard class(es) Class	8
Subsidiary risk	Not listed
Packing group	ll
Environmental hazards	Not listed
ERG code	8L
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.
Other information Passenger and cargo	Allowed
aircraft	Allowed
Cargo aircraft only	Allowed
IMDG	
UN number	UN1824
UN proper shipping name	Sodium hydroxide solution
Transport hazard class(es)	
Class	8
Subsidiary risk	Not listed
Packing group Environmental hazards	1
Marine pollutant	Not listed
EmS	F-A, S-B
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	This substance/mixture is not intended to be transported in bulk

DOT

IATA; IMDG

SECTION 15: Regulatory information U.S. federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CERCLA Hazardous Substance (40 CFR 302.4)

Sodium hydroxide (CAS 1310-73-2)

U.S. state regulations

Massachusetts Right-to-Know Act Sodium hydroxide (CAS 1310-73-2)

New Jersey Worker and Community Right-to-Know Act Sodium hydroxide (CAS 1310-73-2)

Pennsylvania Worker and Community Right-to-Know Act Sodium hydroxide (CAS 1310-73-2)

Rhode Island Right-to-Know Act

Sodium hydroxide (CAS 1310-73-2)

SECTION 16: Other information

NFPA Rating

Health hazard	3
Fire hazard	0
Reactivity	1
Specific	N/A

Disclaimer

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Issue date: May 2015

Last revisions May 2016



SECTION 1: Identification

SAFETY DATA SHEET

According to 29 CFR 1910.1200 Hazard Communication Standard 2012 (HazCom 2012)

Product identifier			
Product name	Chromate Indicator		
Product number	R-0630; R-0630-PL		
Recommended use and restrictions	To be used in accordance with manufacturer instructions or under the direct guidance of the manufacturer.		
Manufacturer	Taylor Technologies, Inc. 31 Loveton Circle Sparks, MD 21152 Phone: (410) 472-4340 Emergency phone: (800) 837-8548		
CTION 2: Hazard(s) ide	entification		
Physical hazards	No data available		
Health hazards	Carcinogenicity	Category 1	
	Eye damage/irritation	Category 2A	
	Germ cell mutagenicity	Category 1	
	Skin corrosion/irritation	Category 2	
	Specific target organ toxicity, single exposure	Category 3 Respiratory tract irritation	
Environmental hazards	No data available		
Hazard pictograms			
Signal word	Danger		
Hazard statements	May cause cancer. May cause (May cause respiratory irritation.	genetic defects. Causes skin irritation. Causes serious eye irritatio	
Precautionary statements			
Prevention	understood. Avoid breathing mi	re use. Do not handle until all safety precautions have been read a st or vapor. Use only outdoors or in a well-ventilated area. Wash s protective gloves/protective clothing/eye protection/face protectio	
Response	IF EXPOSED OR CONCERNED: Get medical advice/attention. IF ON SKIN: Wash with plenty of water. IF SKIN IRRITATION OCCURS: Get medical advice/attention. Take off all contaminated clothing and wash it before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. IF EYE IRRITATION PERSISTS: Get medical advice/attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a physician or poison control center if you feel unwell.		
Storage	Keep tightly capped. Store out of direct sunlight between 36°F–85°F. Store locked up. Store in a well-ventilated place. Keep container tightly closed.		
Disposal	Dispose of contents/container in	n accordance with local/regional/national/international regulations	
Hazards not otherwise classified	No data available		

Mixture			
Chemical name	Common name and synonyms	CAS number	%
Water	Dihydrogen oxide	7732-18-5	90–99
Potassium chromate	Not available	7789-00-6	0.1–10

SECTION 4: First-aid measures

If inhaled

Remove individual to fresh air. Seek medical attention if breathing becomes difficult or if respiratory irritation develops. Give oxygen or artificial respiration if needed.

In case of skin contact

Immediately flush skin with plenty of water for at least 20 minutes. If clothing comes in contact with the product, the clothing should be removed and laundered before reuse. Seek medical attention if irritation develops.

In case of eye contact

Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses if present and easy to do. Continue rinsing. If symptoms persist or in all cases of concern, seek medical advice.

If swallowed

Immediately call a physician or poison control center. Rinse mouth. Never give anything by mouth to a person who is unconscious or is having convulsions. Do NOT induce vomiting unless directed by physician. If vomiting occurs, keep head low so that stomach content does not get into the lungs.

Most important symptoms and effects, both acute and delayed

Refer to section 2 and/or section 11 of the SDS for the most important known symptoms and effects.

Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

General information

Ensure medical personnel are aware of the material(s) involved and take precautions to protect themselves.

SECTION 5: Firefighting measures

Extinguishing media Suitable extinguishing media	Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	Do not use a heavy water stream. Use of heavy stream of water may spread fire.
Specific hazards arising from the substance or mixture Fire hazard	Not flammable
Explosion hazard	Not explosive
Reactivity	Hazardous reactions will not occur under normal conditions.
Hazardous combustion products	No data available
Advice for firefighters	
Precautionary measures	Exercise caution when fighting any chemical fire; hazardous fumes will be present.
Firefighting equipment/instructions	Use water spray or fog for cooling exposed containers.
Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	Refer to section 9 of the SDS for flammability properties.

SECTION 6: Accidental release measures

Personal precautions, protective equipment, and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during cleanup. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protective equipment, refer to section 8 of the SDS.

Environmental precautions

Avoid discharge into drains, watercourses, or onto the ground.

Methods and material for containment and cleaning up

Ventilate the area. Dike the spilled material where this is possible. Stop leak if it can be done without risk. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth, and place into containers. Prevent entry into waterways, sewers, basements, or confined areas. Following product recovery, flush area with water to remove residual contamination. Never return spills to original containers for reuse. Contaminated absorbent material may pose the same hazards as the spilled product. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Reference to other sections

For exposure controls and personal protection, refer to section 8 of the SDS. For waste disposal, refer to section 13 of the SDS.

SECTION 7: Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapor. Do not get in eves, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. For personal protective equipment, refer to section 8 of the SDS. Keep away from incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

Conditions for safe storage, including any incompatibilities

Keep tightly capped. Store out of direct sunlight between 36°F-85°F. Store locked up. Store in a well-ventilated place. Keep container tightly closed. Store away from incompatible materials (refer to section 10 of the SDS).

SECTION 8: Exposure controls/personal protection

ACGIH Threshold Limit Values

Components	Туре	Value	Form
Potassium chromate (CAS 7789-00-6)	TWA	0.05 mg/m ³	Not applicable
NIOSH: Pocket Guide to Chemical Hazards			
Components	Туре	Value	Form
Potassium chromate (CAS 7789-00-6)	TWA	0.002 mg/m ³	Not applicable
OSHA Table Z-1 Limits for Air Contaminants (2	9 CFR 1910.1000)		
Components	Туре	Value	Form
Potassium chromate (CAS 7789-00-6)	Ceiling	0.1 mg/m ³	Not applicable

Biological limit values No biological exposure limits noted for the ingredient(s)

Exposure controls

xposure controis	
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) 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. Eyewash facilities and emergency shower must be available when handling this product.
Personal protective equipment	
Eye/face protection	Wear appropriate chemical safety goggles if contact is likely to occur.
Skin protection	Wear appropriate chemical-resistant gloves and clothing if contact is likely to occur.
Body protection	Wear appropriate protective clothing.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fumes at levels exceeding the exposure limits. Advice should be sought from respiratory protection suppliers.

SE operties

ECTION 9: Physical and	l chemical prope		
Information on basic physical and chemical properties			
Physical state	Liquid		
Form	Liquid		
Color	Light yellow		
Odor	Odorless		
Odor threshold	No data available		
рН	9.1		
Evaporation rate	No data available		
Melting point	No data available		
Freezing point	No data available		

Boiling point	212–215°F (100–101.67°C)		
Flash point	No data available		
Auto-ignition temperature	No data available		
Decomposition temperature	No data available		
Flammability (solid, gas)	No data available		
Vapor pressure	17 mm Hg		
Relative vapor density	0.64		
Solubility	Soluble in all proportions		
Partition coefficient (n-octanol/water)	No data available		
Viscosity	No data available		
Explosive properties	No data available		
Oxidizing properties	No data available		
CTION 10: Stability and r	eactivity		
Reactivity	Hazardous reactions will not occur under	r normal conditions.	
Chemical stability	Stable under recommended handling and	d storage conditions (refer to section 7 of the SDS)	
Possibility of hazardous reactions	No dangerous reaction known under con	nditions of normal use	
Conditions to avoid	Contact with incompatible materials. Do	not use in areas without adequate ventilation.	
Incompatible materials	Organic materials, powdered metals, stro		
CTION 11: Toxicological	information		
Information on toxicological			
effects Inhalation	May cause irritation to the respiratory sys	stem	
Skin contact	Causes skin irritation		
Eye contact	Causes serious eye irritation		
Ingestion	May cause irritation, nausea, vomiting, ar	nd diarrhea	
Most important symptoms/effects, acute and	Direct skin contact may cause slight or m itching.	ild transient irritation. Symptoms may include redness an	
delayed	Direct eye contact may cause serious irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.		
	Inhalation of mists can cause respiratory irritation. Symptoms may include coughing and breathing difficulties.		
	Ingestion may cause gastrointestinal irritation, nausea, vomiting, and diarrhea.		
	Possible germ cell hazard. May cause heritable genetic damage, based on animal data.		
	Possible cancer hazard. May cause canc	er, based on animal data.	
Acute toxicity	This product is not classified as an acute toxicity data.	toxicity hazard. See below for individual ingredient acute	
Components	Species	Test Results	
Potassium chromate (CAS 7789	-00-6)		
Acute			
Oral			
LD_{50}	Mouse	180 mg/kg	
Respiratory or skin sensitization	No data available		
Germ cell mutagenicity	May cause genetic defects		
Carcinogenicity	May cause cancer		
IARC Monographs Overal Potassium chromate (CAS 7789-00-6)	I Evaluation of Carcinogenicity 1 Carcinogenic to humans		
National Toxicology Prog Potassium chromate (CAS 7789-00-6)	ram (NTP) Report on Carcinogens Known to be human carcinogen		

OSHA Specifically Regula Potassium chromate (CAS 7789-00-6)	ted Substances (29 CFR 1910.1001-1096) Cancer
Reproductive toxicity	No data available
Specific target organ toxicity (single exposure)	No data available
Specific target organ toxicity (repeated exposure)	No data available
Aspiration hazard	No data available

SECTION 12: Ecological information

This product is not classified as environmentally hazardous; however, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

SECTION 13: Disposal considerations

Collect and reclaim or dispose of in sealed containers at a licensed waste disposal site. Since emptied containers may retain product residue, follow label warnings even after container is emptied. This material and its container must be disposed of in a safe manner. Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

DOT **UN** number LIN3082 UN proper shipping name Environmentally hazardous substances, liquid, N.O.S. (Potassium chromate) Transport hazard class(es) Class 9 Subsidiary risk Not listed Label(s) 9 Packing group Ш Special precautions for user Read safety instructions, SDS, and emergency procedures before handling. 8, 146, 335, IB3, T4, TP1, TP29 Special provisions Packaging exceptions 155 Packaging, non-bulk 203 Packaging, bulk 241 ΙΑΤΑ **UN** number UN3082 UN proper shipping name Environmentally hazardous substances, liquid, N.O.S. (Potassium chromate) Transport hazard class(es) Class 9 Subsidiary risk Not listed Packing group ш Environmental hazards Yes ERG code 9L Special precautions for user Read safety instructions, SDS, and emergency procedures before handling. Other information Passenger and cargo Allowed aircraft Cargo aircraft only Allowed IMDG UN number UN3082 UN proper shipping name Environmentally hazardous substances, liquid, N.O.S. (Potassium chromate) Transport hazard class(es) 9 Class Subsidiary risk Not listed Packing group Ш Environmental hazards Marine pollutant Yes F-A. S-F FmS Special precautions for user Read safety instructions, SDS, and emergency procedures before handling. Transport in bulk according This substance/mixture is not intended to be transported in bulk. to Annex II of MARPOL 73/78 and the IBC Code

Marine pollutant



SECTION 15: Regulatory information

U.S. federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

California Proposition 65 - CRT: Listed date/Carcinogenic substance Potassium chromate (7789-00-6) (Listed February 27, 1987)

California Proposition 65 - CRT: Listed date/Developmental toxin Potassium chromate (7789-00-6) (Listed December 19, 2008)

California Proposition 65 - CRT: Listed date/Female reproductive toxin Potassium chromate (7789-00-6) (Listed December 19, 2008)

California Proposition 65 - CRT: Listed date/Male reproductive toxin Potassium chromate (7789-00-6) (Listed December 19, 2008)

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

CERCLA Hazardous Substance (40 CFR 302.4) Potassium chromate (CAS 7789-00-6)

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAP) Potassium chromate (CAS 7789-00-6)

SARA 313 (TRI Reporting) Potassium chromate (CAS 7789-00-6)

U.S. state regulations

Massachusetts Right-to-Know Act Potassium chromate (CAS 7789-00-6)

New Jersey Worker and Community Right-to-Know Act Potassium chromate (CAS 7789-00-6)

Pennsylvania Worker and Community Right-to-Know Act Potassium chromate (CAS 7789-00-6)

SECTION 16: Other information

3
0
3
N/A

Disclaimer

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Issue date:

May 2015

Last revisions August 2016



SAFETY DATA SHEET

According to 29 CFR 1910.1200 Hazard Communication Standard 2012 (HazCom 2012)

ECTION 1: Identification	
Product identifier	Coloium Indiantes Douvlos
Product name	Calcium Indicator Powder
Product number	R-0011P; R-0011P-PL
Recommended use and restrictions	To be used in accordance with manufacturer instructions or under the direct guidance of the manufacturer.
Manufacturer	Taylor Technologies, Inc. 31 Loveton Circle Sparks, MD 21152 Phone: (410) 472-4340 Emergency phone: (800) 837-8548
ECTION 2: Hazard(s) identified	cation
Physical hazards	Not applicable
Health hazards	Not applicable
Environmental hazards	Not currently regulated by OSHA. For additional information, refer to section 12 of the SDS.
Label elements Precautionary statements	
Prevention	Avoid contact with skin, eyes, or clothing. For contact with skin or eyes, flush 20 minutes with water. If ingested, contact physician or local poison control center. Treat symptoms as needed
Response	This reagent is not defined as a hazardous chemical per OSHA's Hazard Communication Standard 2012; however, use care when handling.
Storage	Keep tightly capped. Store out of direct sunlight between 36°F–85°F.
Disposal	Not applicable
Hazards not otherwise classified	Not applicable

Mixture

Chemical name	Common name and synonyms	CAS number	% w/w
Potassium chloride	Not available	7447-40-7	99–100
Other components below reportable levels	Not applicable	Not applicable	0.1–1

SECTION 4: First-aid measures

If inhaled

Remove individual to fresh air. Seek medical advice/attention if breathing becomes difficult or if respiratory irritation develops. Give oxygen or artificial respiration if needed.

In case of skin contact

Immediately flush skin with plenty of water for at least 20 minutes. If clothing comes in contact with the product, the clothing should be removed and laundered before reuse. Seek medical advice/attention if irritation develops.

In case of eye contact

Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If symptoms persist or in all cases of concern, seek medical advice/attention.

If swallowed

Rinse mouth. Never give anything by mouth to a person who is unconscious or is having convulsions. Do NOT induce vomiting unless directed by physician. If vomiting occurs, keep head low so that stomach content does not get into the lungs. If symptoms persist or in all cases of concern, seek medical advice/attention.

Most important symptoms and effects, both acute and delayed

Refer to section 2 and/or section 11 of the SDS for the most important known symptoms and effects.

Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

Ensure medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Ensure medical personnel are aw	are of the material(3) involved and take precadions to protect themselves.
SECTION 5: Firefighting meas	sures
Extinguishing media	
Suitable extinguishing media	Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	Do not use a heavy water stream. Use of heavy stream of water may spread fire.
Specific hazards arising from the Fire hazard	substance or mixture Not flammable
Explosion hazard	Not explosive
Reactivity	Hazardous reactions will not occur under normal conditions.
Hazardous combustion products	Carbon oxides, hydrogen chloride gas, potassium oxides. Other irritating fumes and smoke.
Advice for firefighters	
Precautionary measures	Exercise caution when fighting any chemical fire; hazardous fumes will be present.
Firefighting equipment/instructions	Use water spray or fog for cooling exposed containers.
Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	Refer to section 9 of the SDS for flammability properties.

SECTION 6: Accidental release measures

Personal precautions, protective equipment, and emergency procedures

Wear appropriate protective equipment and clothing during cleanup. Local authorities should be advised if significant spillages cannot be contained. For personal protective equipment, refer to section 8 of the SDS.

Environmental precautions

Avoid discharge into drains, watercourses, or onto the ground.

Methods and material for containment and cleaning up

Dike the spilled material where this is possible. Stop leak if it can be done without risk. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth, and place into containers. Prevent entry into waterways, sewers, basements, or confined areas. Following product recovery, flush area with water. Never return spills to original containers for reuse. Contaminated absorbent material may pose the same hazards as the spilled product. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Reference to other sections

For exposure controls and personal protection, refer to section 8 of the SDS. For waste disposal, refer to section 13 of the SDS.

SECTION 7: Handling and storage

Personal precautions, protective equipment, and emergency procedures

Do not breathe dust. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. For personal protective equipment, refer to section 8 of the SDS. Keep away from incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

Conditions for safe storage, including any incompatibilities

Keep tightly capped. Store out of direct sunlight between 36°F–85°F. Store away from incompatible materials (refer to section 10 of the SDS).

SECTION 8: Exposure controls/personal protection

Occupational exposure limits

US ACGIH Threshold Limit Values

Not regulated

US NIOSH: Pocket Guide to Chemical Hazards

Not regulated

US OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Not regulated

Biological limit values

No biological exposure limits noted for the ingredient(s)

Exposure controls

Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) 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. Eyewash facilities and emergency shower must be available when handling this product.
Personal protective equipment	
Eye/face protection	Wear appropriate chemical safety goggles if contact is likely to occur.
Skin protection	Wear appropriate chemical-resistant gloves and clothing if contact is likely to occur.
Body protection	Wear appropriate protective clothing.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fumes at levels exceeding the exposure limits. Advice should be sought from respiratory protection suppliers.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid
Form	Crystalline
Color	Purple-brown crystals
Odor	Odorless
Odor threshold	Not applicable
рН	Not applicable
Evaporation rate	Not applicable
Melting point	No data available
Freezing point	Not applicable
Boiling point	No data available
Flash point	Not applicable
Specific gravity	No data available
Auto-ignition temperature	Not applicable
Decomposition temperature	No data available
Flammability (solid, gas)	Not applicable
Upper Flammability Limit	Not applicable
Lower Flammability Limit	Not applicable
Vapor pressure	No data available
Relative vapor density	No data available
Solubility	Soluble in all proportions
Partition coefficient (n-octanol/water)	No data available
Viscosity	No data available
Explosive properties	Not applicable
Oxidizing properties	No data available
Percent volatile	Not applicable

ReactivityHazardous reactions will not occur under normal conditions.Chemical stabilityStable under recommended handling and storage conditions (refer to section 7 of the SDS)Possibility of hazardous
reactionsNo dangerous reaction known under conditions of normal useConditions to avoidContact with incompatible materials. Do not use in areas without adequate ventilation.Incompatible materialsOxidizing agents, strong acids.Hazardous decomposition
productsNo hazardous decomposition products under normal conditions.

SECTION 11: Toxicological information

Information on toxicological effect			
Inhalation Skin contact	May cause slight or mild tran		
	May cause slight or mild transient irritation		
Eye contact	May cause slight or mild transient irritation May cause irritation, nausea, vomiting, and diarrhea		
Ingestion	-	-	
Most important symptoms/effects, acute and	Direct skin contact may cause slight or mild transient irritation. Symptoms may include redness and itching.		
delayed	tearing, redness, swelling, ar		
	Inhalation of mists can cause respiratory irritation. Symptoms may include coughing and breathing difficulties.		
	Ingestion may cause gastroi	ntestinal irritation, nausea, vomiting, and diarrhea.	
Acute toxicity	This product is not classified ingredient acute toxicity data	as an acute toxicity hazard. See below for product and individual	
Product	Species	Acute Toxicity Estimate (ATE)	
Calcium Indicator Powder (CAS Mi	xture)		
Acute	-		
Dermal			
LD ₅₀	Rat	Not available	
Inhalation			
LC ₅₀	Rat	Not available	
Oral			
LD ₅₀	Rat	>5000 mg/kg	
Components	Species	Acute Toxicity Data	
Potassium chloride (CAS 7681-11-	0)		
Acute			
Dermal			
LD ₅₀	Rat	Not available	
Inhalation			
LC ₅₀	Rat	Not available	
Oral			
LD ₅₀	Rat	3020 mg/kg	
Skin corrosion/irritation	May cause slight or mild trar	nsient irritation	
Serious eye damage/eye irritation			
Respiratory sensitization	No data available		
Skin sensitization	No data available		
Germ cell mutagenicity	No data available		
Carcinogenicity			
IARC Monographs. Overall Eval	uation of Carcinogenicity		
Not classifiable			
OSHA Specifically Regulated So Not regulated	ubstances (29 CFR 1910.100)1-1096)	
US National Toxicology Program	n (NTP) Report on Carcinog	lens	
Not regulated			
Reproductive toxicity	No data available		
Specific target organ toxicity (single exposure)	No data available		
Specific target organ toxicity (repeated exposure)	No data available		
Aspiration hazard	No data available		

Ecotoxicity	This product is not classified as environmentally hazardous.
Persistence and degradability	No data available
Bioaccumulative potential	No data available
Mobility in soil	No data available
Other adverse effects	Large or frequent spills can have a harmful or damaging effect on the environment.
CTION 13: Disposal consid	lerations
Collect and reclaim or dispose of ir residue, follow label warnings even	n sealed containers at a licensed waste disposal site. Since emptied containers may retain product n after container is emptied. This material and its container must be disposed of in a safe manner. ccordance with local/regional/national/international regulations.
CTION 14: Transport inform	nation
DOT	Not regulated as dangerous goods
ΙΑΤΑ	Not regulated as dangerous goods
IMDG	Not regulated as dangerous goods
CTION 15: Regulatory info	
US federal regulations	
CERCLA Hazardous Substand	ce (40 CFR 302.4)
Not regulated	
-	n Standard (29 CFR 1910.1200)
Not regulated	
-	Substances (20 CED 1010 1001 1006)
Not regulated	Substances (29 CFR 1910.1001-1096)
-	
-	ous Substance (40 CFR 355 Appendices A / B)
Not regulated	
SARA 304 Emergency Releas	e Notification
Not regulated	
SARA 311/312 Hazardous Che	emical
Not regulated	
SARA 313 (TRI reporting)	
Not regulated	
TSCA Section 8(b) Chemical I	nventory
All components are on the U.	.S. EPA TSCA Inventory list.
TSCA Section 12(b) Export No	otification (40 CFR 707, Subpt. D)
Not regulated	
Other federal regulations	
Clean Air Act (CAA) Section 1	12 Hazardous Air Pollutants (HAPs)
Not regulated	
Clean Air Act (CAA) Section 1	12(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated	
Safe Drinking Water Act (SDW	VA)
Not regulated	
US state regulations	
	r and Toxic Enforcement Act of 1986 (California Proposition 65)
Not regulated	
Massachusetts Right-to-Knov	v Act

New Jersey Worker and Community Right-to-Know Act

Not regulated

Pennsylvania Worker and Community Right-to-Know Act

Not regulated

Rhode Island Right-to-Know Act

Not regulated

SECTION 16: Other information

NFPA Rating	
Health hazard	0
Fire hazard	0
Reactivity	0
Specific	N/A

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Issue date:

May 2015

Last revisions September 2017



SAFETY DATA SHEET

According to 29 CFR 1910.1200 Hazard Communication Standard 2012 (HazCom 2012)

CTION 1: Identification	า		
Product identifier			
Product name	Hardness Buffer		
Product number	R-0619; R-0619B; R-0619LB; R-0619B-PL		
Recommended use and restrictions	To be used in accordance wi manufacturer.	th manufacturer instructions or under the direct guidance of the	
Manufacturer	Taylor Technologies, Inc. 31 Loveton Circle Sparks, MD 21152 Phone: (410) 472-4340 Emergency phone: (800) 837	7-8548	
CTION 2: Hazard(s) ide	entification		
Physical hazards	No data available		
Health hazards	Acute toxicity, oral	Category 4	
	Eye damage/irritation	Category 1	
	Skin corrosion/irritation	Category 1	
Environmental hazards	No data available		
Signal word	Danger		
Hazard statements	Causes severe skin burns an	d eye damage. Harmful if swallowed.	
Precautionary statements			
Prevention	Do not breathe dusts or mists. Wash skin thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection if contact is likely to occur. Do not eat, drir or smoke when using this product.		
Response	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a physician or poison control center you feel unwell. IF ON SKIN (OR HAIR): Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. IF INHALED: Remove person to fresh air an keep comfortable for breathing. Immediately call a physician or poison control center. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Immediately call a physician or poison control center.		
Storage	Keep tightly capped. Store or	ut of direct sunlight between 36°F–85°F. Store locked up.	
Disposal	Dispose of contents/containe	r in accordance with local/regional/national/international regulations.	
Hazards not otherwise	No data available		

SECTION 3: Composition/information on ingredients

Mixture			
Chemical name	Common name and synonyms	CAS number	%
Water	Dihydrogen oxide	7732-18-5	65–75
Ammonium hydroxide	Not available	1336-21-6	20–30
Ammonium chloride	Salmiac	12125-02-9	5–15

SECTION 4: First-aid measures

If inhaled

Remove individual to fresh air. Seek medical attention if breathing becomes difficult or if respiratory irritation develops. Give oxygen or artificial respiration if needed.

In case of skin contact

Immediately flush skin with plenty of water for at least 20 minutes. If clothing comes in contact with the product, the clothing should be removed and laundered before reuse. Seek medical attention if irritation develops.

In case of eye contact

Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

If swallowed

Call a physician or poison control center immediately. Rinse mouth. Never give anything by mouth to a person who is unconscious or is having convulsions. Do NOT induce vomiting unless directed by physician. If vomiting occurs, keep head low so that stomach content does not get into the lungs.

Most important symptoms and effects, both acute and delayed

Refer to section 2 and/or section 11 of the SDS for the most important known symptoms and effects.

Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

General information

Ensure medical personnel are aware of the material(s) involved and take precautions to protect themselves.

SECTION 5: Firefighting measures

Extinguishing media	
Suitable extinguishing media	Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	Do not use a heavy water stream. Use of heavy stream of water may spread fire.
Specific hazards arising from the substance or mixture	
Fire hazard	Not flammable
Explosion hazard	Not explosive
Reactivity	Hazardous reactions will not occur under normal conditions.
Hazardous combustion products	Hydrogen chloride gas, magnesium oxides
Advice for firefighters	
Precautionary measures	Exercise caution when fighting any chemical fire; hazardous fumes will be present.
Firefighting equipment/instructions	Use water spray or fog for cooling exposed containers.
Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	Refer to section 9 of the SDS for flammability properties.
ECTION 6: Accidental role	

SECTION 6: Accidental release measures

Personal precautions, protective equipment, and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during cleanup. Do not breathe mists. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protective equipment, refer to section 8 of the SDS.

Environmental precautions

Avoid discharge into drains, watercourses, or onto the ground.

Methods and material for containment and cleaning up

Dike the spilled material where this is possible. Stop leak if it can be done without risk. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth, and place into containers. Prevent entry into waterways, sewer, basements, or confined areas. Following product recovery, flush area with water. Never return spills to original containers for reuse. Contaminated absorbent material may pose the same hazards as the spilled product. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Reference to other sections

For exposure controls and personal protection, refer to section 8 of the SDS. For waste disposal, refer to section 13 of the SDS.

SECTION 7: Handling and storage

Personal precautions, protective equipment, and emergency procedures

Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. For personal protective equipment, refer to section 8 of the SDS. Keep away from incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

Conditions for safe storage, including any incompatibilities

Keep tightly capped. Store out of direct sunlight between 36°F–85°F. Store locked up. Store away from incompatible materials (refer to section 10 of the SDS).

SECTION 8: Exposure controls/personal protection

Occupational exposure limits

ACGIH Threshold Limit Values

Components	Туре	Value	Form
Ammonium chloride (CAS 12125-02-9)	STEL	20 mg/m ³	Not applicable
	TWA	10 mg/m ³	Not applicable
Ammonium hydroxide (CAS 1336-21-6)	STEL	35 ppm	Not applicable
	TWA	25 ppm	Not applicable
IOSH: Pocket Guide to Chemical Hazards			
Components	Туре	Value	Form
Ammonium chloride (CAS 12125-02-9)	STEL	20 mg/m ³	Not applicable
	TWA	10 mg/m ³	Not applicable
Ammonium hydroxide (CAS 1336-21-6)	STEL	35 ppm	Not applicable
		27 mg/m^3	Not applicable
	TWA	25 ppm 18 mg/m ³	Not applicable
			Not applicable

Biological limit values

No biological exposure limits noted for the ingredient(s)

Exposure controls

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) 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. Eyewash facilities and emergency shower must be available when handling this product.

Personal protective equipment	
Eye/face protection	Wear appropriate chemical safety goggles if contact is likely to occur.
Skin protection	Wear appropriate chemical-resistant gloves and clothing if contact is likely to occur.
Body protection	Wear appropriate protective clothing.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fumes at levels exceeding the exposure limits. Advice should be sought from respiratory protection suppliers.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

and chemical properties	
Physical state	Liquid
Form	Liquid
Color	Clear, colorless to yellow
Odor	Sulfidic/ammonical
Odor threshold	No data available
рН	10.6
Evaporation rate	No data available
Melting point	No data available
Freezing point	No data available
Boiling point	120–140°F (48.9–60°C)
Flash point	LEL 16% as NH_3; UEL 27% as NH_3 $$
Auto-ignition temperature	No data available
Decomposition temperature	No data available

Relative vapor density Solubility	0.6 Soluble in all proportions		
Partition coefficient (n-octanol/water)	No data available		
Viscosity	No data available		
Explosive properties	No data available		
Oxidizing properties	No data available		
CTION 10: Stability and r	eactivity		
Reactivity	Hazardous reactions	will not occur under r	normal conditions.
Chemical stability	Stable under recomm	nended handling and	storage conditions (refer to section 7 of the SDS)
Possibility of hazardous reactions	No dangerous reaction	on known under condi	itions of normal use
Conditions to avoid	Contact with incompa	atible materials. Do no	ot use in areas without adequate ventilation.
Incompatible materials	Copper, iron, strong a	acids, strong bases, s	trong oxidizing agents, zinc
CTION 11: Toxicological	information		
Information on toxicological effects			
Inhalation	May cause irritation t	o the respiratory syste	em
Skin contact	Causes severe skin burns		
Eye contact	Causes serious eye	damage	
Ingestion	Harmful if swallowed		
Most important symptoms/effects, acute and	Direct skin contact may cause corrosive skin burns, deep ulcerations, and possibly permanent scarring.		
delayed			age. Symptoms may include stinging, tearing, redness
	swelling, and blurred	VISION.	
	Inhalation of mists ca and wheezing.	n cause severe respir	
	Inhalation of mists ca and wheezing. Ingestion may produc	n cause severe respir e burns to the lips, or	atory irritation. Symptoms may include coughing, chok al cavity, upper airway, esophagus, and possibly the lominal pain, vomiting, burns, perforations, bleeding.
Acute toxicity	Inhalation of mists ca and wheezing. Ingestion may produc digestive tract. Sympt	n cause severe respir e burns to the lips, or toms may include abd	al cavity, upper airway, esophagus, and possibly the
Acute toxicity Product	Inhalation of mists ca and wheezing. Ingestion may produc digestive tract. Sympt Harmful if swallowed.	n cause severe respir e burns to the lips, or toms may include abd	al cavity, upper airway, esophagus, and possibly the lominal pain, vomiting, burns, perforations, bleeding.
-	Inhalation of mists ca and wheezing. Ingestion may produc digestive tract. Sympt Harmful if swallowed.	n cause severe respir e burns to the lips, or toms may include abd . See below for acute	al cavity, upper airway, esophagus, and possibly the lominal pain, vomiting, burns, perforations, bleeding. toxicity estimate (ATE) and individual ingredient acute
Product	Inhalation of mists ca and wheezing. Ingestion may produc digestive tract. Sympt Harmful if swallowed.	n cause severe respir e burns to the lips, or toms may include abd . See below for acute	al cavity, upper airway, esophagus, and possibly the lominal pain, vomiting, burns, perforations, bleeding. toxicity estimate (ATE) and individual ingredient acute
Product Hardness Buffer (CAS Mixture) Acute Oral	Inhalation of mists ca and wheezing. Ingestion may produc digestive tract. Sympt Harmful if swallowed.	n cause severe respir te burns to the lips, or toms may include abd . See below for acute Species	al cavity, upper airway, esophagus, and possibly the lominal pain, vomiting, burns, perforations, bleeding. toxicity estimate (ATE) and individual ingredient acute
Product Hardness Buffer (CAS Mixture) Acute	Inhalation of mists ca and wheezing. Ingestion may produc digestive tract. Sympt Harmful if swallowed.	n cause severe respir e burns to the lips, or toms may include abd . See below for acute	al cavity, upper airway, esophagus, and possibly the lominal pain, vomiting, burns, perforations, bleeding. toxicity estimate (ATE) and individual ingredient acute
Product Hardness Buffer (CAS Mixture) Acute Oral	Inhalation of mists ca and wheezing. Ingestion may produc digestive tract. Sympt Harmful if swallowed.	n cause severe respir te burns to the lips, or toms may include abd . See below for acute Species	al cavity, upper airway, esophagus, and possibly the lominal pain, vomiting, burns, perforations, bleeding. toxicity estimate (ATE) and individual ingredient acute Test Results
Product Hardness Buffer (CAS Mixture) Acute Oral LD ₅₀	Inhalation of mists ca and wheezing. Ingestion may produc digestive tract. Sympt Harmful if swallowed toxicity data.	n cause severe respir to burns to the lips, or toms may include abd . See below for acute Species Rat	al cavity, upper airway, esophagus, and possibly the lominal pain, vomiting, burns, perforations, bleeding. toxicity estimate (ATE) and individual ingredient acute Test Results 1360.54 mg/kg
Product Hardness Buffer (CAS Mixture) Acute Oral LD ₅₀ Components	Inhalation of mists ca and wheezing. Ingestion may produc digestive tract. Sympt Harmful if swallowed toxicity data.	n cause severe respir to burns to the lips, or toms may include abd . See below for acute Species Rat	al cavity, upper airway, esophagus, and possibly the lominal pain, vomiting, burns, perforations, bleeding. toxicity estimate (ATE) and individual ingredient acute Test Results 1360.54 mg/kg
Product Hardness Buffer (CAS Mixture) Acute Oral LD ₅₀ Components Ammonium chloride (CAS 1212 Acute Oral	Inhalation of mists ca and wheezing. Ingestion may produc digestive tract. Sympt Harmful if swallowed toxicity data.	n cause severe respir to burns to the lips, or toms may include abd . See below for acute Species Rat	al cavity, upper airway, esophagus, and possibly the lominal pain, vomiting, burns, perforations, bleeding. toxicity estimate (ATE) and individual ingredient acute Test Results 1360.54 mg/kg
Product Hardness Buffer (CAS Mixture) Acute Oral LD ₅₀ Components Ammonium chloride (CAS 1212 Acute Oral LD ₅₀	Inhalation of mists ca and wheezing. Ingestion may produc digestive tract. Sympt Harmful if swallowed toxicity data.	n cause severe respir to burns to the lips, or toms may include abd . See below for acute Species Rat	al cavity, upper airway, esophagus, and possibly the lominal pain, vomiting, burns, perforations, bleeding. toxicity estimate (ATE) and individual ingredient acute Test Results 1360.54 mg/kg
Product Hardness Buffer (CAS Mixture) Acute Oral LD ₅₀ Components Ammonium chloride (CAS 1212 Acute Oral	Inhalation of mists ca and wheezing. Ingestion may produc digestive tract. Sympt Harmful if swallowed toxicity data.	n cause severe respir to burns to the lips, or toms may include abd . See below for acute Species Rat Species	al cavity, upper airway, esophagus, and possibly the lominal pain, vomiting, burns, perforations, bleeding. toxicity estimate (ATE) and individual ingredient acute Test Results 1360.54 mg/kg Test Results
Product Hardness Buffer (CAS Mixture) Acute Oral LD ₅₀ Components Ammonium chloride (CAS 1212 Acute Oral LD ₅₀ Ammonium hydroxide (CAS 133	Inhalation of mists ca and wheezing. Ingestion may produc digestive tract. Sympt Harmful if swallowed toxicity data.	n cause severe respir to burns to the lips, or toms may include abd . See below for acute Species Rat Species	al cavity, upper airway, esophagus, and possibly the lominal pain, vomiting, burns, perforations, bleeding. toxicity estimate (ATE) and individual ingredient acute Test Results 1360.54 mg/kg Test Results
Product Hardness Buffer (CAS Mixture) Acute Oral LD ₅₀ Components Ammonium chloride (CAS 1212 Acute Oral LD ₅₀ Ammonium hydroxide (CAS 133 Acute	Inhalation of mists ca and wheezing. Ingestion may produc digestive tract. Sympt Harmful if swallowed toxicity data.	n cause severe respir to burns to the lips, or toms may include abd . See below for acute Species Rat Species	al cavity, upper airway, esophagus, and possibly the lominal pain, vomiting, burns, perforations, bleeding. toxicity estimate (ATE) and individual ingredient acute Test Results 1360.54 mg/kg Test Results
Product Hardness Buffer (CAS Mixture) Acute Oral LD ₅₀ Components Ammonium chloride (CAS 1212 Acute Oral LD ₅₀ Ammonium hydroxide (CAS 133 Acute Oral	Inhalation of mists ca and wheezing. Ingestion may produc digestive tract. Sympt Harmful if swallowed toxicity data.	n cause severe respir to burns to the lips, or toms may include abd . See below for acute Species Rat Species Rat	al cavity, upper airway, esophagus, and possibly the lominal pain, vomiting, burns, perforations, bleeding. toxicity estimate (ATE) and individual ingredient acute Test Results 1360.54 mg/kg Test Results 1650 mg/kg
Product Hardness Buffer (CAS Mixture) Acute Oral LD ₅₀ Components Ammonium chloride (CAS 1212 Acute Oral LD ₅₀ Ammonium hydroxide (CAS 133 Acute Oral LD ₅₀ Respiratory or skin	Inhalation of mists ca and wheezing. Ingestion may produce digestive tract. Sympt Harmful if swallowed. toxicity data. 5-02-9)	n cause severe respir to burns to the lips, or toms may include abd . See below for acute Species Rat Species Rat	al cavity, upper airway, esophagus, and possibly the lominal pain, vomiting, burns, perforations, bleeding. toxicity estimate (ATE) and individual ingredient acute Test Results 1360.54 mg/kg Test Results 1650 mg/kg
Product Hardness Buffer (CAS Mixture) Acute Oral LD ₅₀ Components Ammonium chloride (CAS 1212 Acute Oral LD ₅₀ Ammonium hydroxide (CAS 133 Acute Oral LD ₅₀ Respiratory or skin sensitization	Inhalation of mists ca and wheezing. Ingestion may produc digestive tract. Sympt Harmful if swallowed toxicity data. 5-02-9) 36-21-6) No data available	n cause severe respir to burns to the lips, or toms may include abd . See below for acute Species Rat Species Rat	lominal pain, vomiting, burns, perforations, bleeding. toxicity estimate (ATE) and individual ingredient acute Test Results 1360.54 mg/kg Test Results 1650 mg/kg

Specific target organ toxicity (single exposure)	No data available
Specific target organ toxicity (repeated exposure)	No data available
Aspiration hazard	No data available

SECTION 12: Ecological information

This product is not classified as environmentally hazardous; however, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

SECTION 13: Disposal considerations

Collect and reclaim or dispose of in sealed containers at a licensed waste disposal site. Since emptied containers may retain product residue, follow label warnings even after container is emptied. This material and its container must be disposed of in a safe manner. Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

_ _ _

DOT	
UN number	UN2672
UN proper shipping name	Ammonia solution
Transport hazard class(es)	
Class	8
Subsidiary risk	Not listed
Label(s)	8
Packing group	III
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.
Special provisions	IB3, IP8, T7, TP1
Packaging exceptions	154
Packaging, non-bulk	203
Packaging, bulk	241
ΙΑΤΑ	
UN number	UN2672
UN proper shipping name	Ammonia solution
Transport hazard class(es)	
Class	8
Subsidiary risk	Not listed
Packing group	
Environmental hazards	Yes
ERG code	8L
Special precautions for user Other information	Read safety instructions, SDS, and emergency procedures before handling.
Passenger and cargo aircraft	852
Cargo aircraft only	856
IMDG	
UN number	UN2672
UN proper shipping name	Ammonia solution
Transport hazard class(es)	
Class	8
Subsidiary risk	Not listed
Packing group	
33-44	
Environmental hazards	
Marine pollutant	Yes
EmS	F-A, S-B
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.
Transport in bulk according t Annex II of MARPOL 73/78 and the IBC Code	0
DOT	



Marine pollutant



SECTION 15: Regulatory information

U.S. federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

U.S. state regulations

Massachusetts Right-to-Know Act Ammonium chloride (CAS 12125-02-9) Ammonium hydroxide (CAS 1336-21-6)

New Jersey Worker and Community Right-to-Know Act

Ammonium chloride (CAS 12125-02-9) Ammonium hydroxide (CAS 1336-21-6)

Pennsylvania Worker and Community Right-to-Know Act

Ammonium chloride (CAS 12125-02-9) Ammonium hydroxide (CAS 1336-21-6)

SECTION 16: Other information

3
1
2
N/A

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Issue date:

May 2015

Last revisions August 2016


SAFETY DATA SHEET

According to 29 CFR 1910.1200 Hazard Communication Standard 2012 (HazCom 2012)

SECTION 1: Identification

Product identifier Product name	Hardness Indicator Powder
Product number	R-0620; R-0620B; R-0620LB; R-0620B-PL
Recommended use and restrictions	To be used in accordance with manufacturer instructions or under the direct guidance of the manufacturer.
Manufacturer	Taylor Technologies, Inc. 31 Loveton Circle Sparks, MD 21152 Phone: (410) 472-4340 Emergency phone: (800) 837-8548
ECTION 2: Hazard(s) id	lentification

SE

Physical hazards	No data available
Health hazards	No data available
Environmental hazards	No data available
Label elements Hazard pictograms	No data available
Signal word	No data available
Hazard statements	No data available
Precautionary statements	
Prevention	No data available
Response	No data available
Storage	Keep tightly capped. Store out of direct sunlight between 36°F–85°F.
Disposal	No data available
Hazards not otherwise classified	Avoid contact with skin, eyes, or clothing. For contact with skin or eyes, flush 20 minutes with water. If ingested, contact physician or local poison control center. Treat symptoms as needed.

SECTION 3: Composition/information on ingredients

wixture				
Chemical name	Common name and synonyms	CAS number	%	
Sucrose	Sugar	57-50-1	>99	
Other components below reportable levels			<1	

SECTION 4: First-aid measures

If inhaled

Mixturo

Remove individual to fresh air. Seek medical attention if breathing becomes difficult or if respiratory irritation develops. Give oxygen or artificial respiration if needed.

In case of skin contact

Immediately flush skin with plenty of water for at least 20 minutes. If clothing comes in contact with the product, the clothing should be removed and laundered before reuse. Seek medical attention if irritation develops.

In case of eye contact

Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses if present and easy to do. Continue rinsing. If symptoms persist or in all cases of concern, seek medical advice.

If swallowed

Rinse mouth. Never give anything by mouth to a person who is unconscious or is having convulsions. Do NOT induce vomiting unless directed by physician. If vomiting occurs, keep head low so that stomach content does not get into the lungs. If symptoms persist or in all cases of concern, seek medical advice.

Most important symptoms and effects, both acute and delayed

Refer to section 2 and/or section 11 of the SDS for the most important known symptoms and effects.

Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

General information

Ensure medical personnel are aware of the material(s) involved and take precautions to protect themselves.

SECTION 5: Firefighting measures

Extinguishing media Suitable extinguishing media	Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	Do not use a heavy water stream. Use of heavy stream of water may spread fire.
Specific hazards arising from the substance or mixture Fire hazard	Not flammable
Explosion hazard	Not explosive
Reactivity	Hazardous reactions will not occur under normal conditions.
Hazardous combustion products	No data available
Advice for firefighters	
Precautionary measures	Exercise caution when fighting any chemical fire; hazardous fumes will be present.
Firefighting equipment/instructions	Use water spray or fog for cooling exposed containers.
Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	Refer to section 9 of the SDS for flammability properties.
SECTION 6. Assidental rale	

SECTION 6: Accidental release measures

Personal precautions, protective equipment, and emergency procedures

Wear appropriate protective equipment and clothing during cleanup. Local authorities should be advised if significant spillages cannot be contained. For personal protective equipment, refer to section 8 of the SDS.

Environmental precautions

Avoid discharge into drains, watercourses, or onto the ground.

Methods and material for containment and cleaning up

Sweep up or vacuum up spillage and collect in suitable container for later disposal. Never return spills to original containers for reuse. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Reference to other sections

For exposure controls and personal protection, refer to section 8 of the SDS. For waste disposal, refer to section 13 of the SDS.

SECTION 7: Handling and storage

Personal precautions, protective equipment, and emergency procedures

Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Wear appropriate personal protective equipment. For personal protective equipment, refer to section 8 of the SDS. Keep away from incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

Conditions for safe storage, including any incompatibilities

Keep tightly capped. Store out of direct sunlight between 36°F–85°F. Store away from incompatible materials (refer to section 10 of the SDS).

SECTION 8: Exposure controls/personal protection

Occupational exposure limits

ACGIH Threshold Limit Values

Components	Туре	Value	Form
Sucrose (CAS 57-50-1)	TWA	10 mg/m ³	Not applicable
OSHA Table Z-1 Limits for Air Contamir	nants (29 CFR 1910.1000)		
Components	Туре	Value	Form
Components Sucrose (CAS 57-50-1)	Type PEL	Value 15 mg/m ³ 5 mg/m ³	Form Total dust

Biological limit values

No biological exposure limits noted for the ingredient(s)

Exposure controls Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) 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. Eyewash facilities and emergency shower must be available when handling this product. Personal protective equipment Wear appropriate chemical safety goggles if contact is likely to occur. Skin protection Wear appropriate chemical-resistant gloves and clothing if contact is likely to occur.

In case of insufficient ventilation, wear suitable respiratory equipment. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fumes at levels exceeding the exposure

limits. Advice should be sought from respiratory protection suppliers.

Wear appropriate protective clothing.

Vapor pressureNo data availableRelative vapor densityNo data availableSolubilitySoluble in all proportionsPartition coefficient
(n-octanol/water)No data availableViscosityNo data available

SECTION 10: Stability and reactivity

Body protection

Respiratory protection

Information on basic physical and chemical properties

Physical state

Odor threshold

Evaporation rate

Melting point

Boiling point Flash point

Freezing point

Auto-ignition temperature Decomposition temperature

Flammability (solid, gas)

Explosive properties

Oxidizing properties

Form

Color

Odor

pН

SECTION 9: Physical and chemical properties

Solid

Powder

Purple

Odorless

No data available

No data available

No data available

No data available

No data available No data available

No data available No data available

No data available

No data available

No data available

No data available

Reactivity	Hazardous reactions will not occur under normal conditions.
Chemical stability	Stable under recommended handling and storage conditions (refer to section 7 of the SDS)
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use
Conditions to avoid	Contact with incompatible materials. Do not use in areas without adequate ventilation.
Incompatible materials	Nitric acid, oxidizers, and sulfuric acid
CECTION 44. Toxical arise	

SECTION 11: Toxicological information Information on toxicological

effects Inhalation	May cause irritation to the respiratory system
Skin contact	May cause slight or mild transient irritation
Eye contact	May cause slight or mild transient irritation
Ingestion	May cause irritation, nausea, vomiting, and diarrhea

Most important symptoms/effects, acute and	Direct skin contact may cause slight or mild transient irritation. Symptoms may include redness and itching.			
delayed	Direct eye contact may cause slight or mild transient irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.			
	Inhalation of dust of difficulties.	on of dust can cause respiratory irritation. Symptoms may include coughing and breathing es.		
	Ingestion may cau	se gastrointestinal irri	itation, nausea, vomiting, and diarrhea.	
Acute toxicity	This product is not classified as an acute toxicity hazard. See below for individual ingredient acute toxicity data.			dient acute
Components		Species	Test Results	
Sucrose (CAS 57-50-1)				
Acute				
Oral				
LD ₅₀		Rat	29700 mg/kg	
Acute toxicity	No data available			
Respiratory or skin sensitization	No data available			
Germ cell mutagenicity	No data available			
Carcinogenicity	No data available			
Reproductive toxicity	No data available			
Specific target organ toxicity (single exposure)	No data available			
Specific target organ toxicity (repeated exposure)	No data available			
Aspiration hazard	No data available			

SECTION 12: Ecological information

This product is not classified as environmentally hazardous; however, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

SECTION 13: Disposal considerations

Collect and reclaim or dispose of in sealed containers at a licensed waste disposal site. Since emptied containers may retain product residue, follow label warnings even after container is emptied. This material and its container must be disposed of in a safe manner. Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

No data available

SECTION 15: Regulatory information

No data available

SECTION 16: Other information

NFPA Rating	
Health hazard	0
Fire hazard	0
Reactivity	0
Specific	N/A

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Issue date:

May 2015

Last revisions May 2016



SAFETY DATA SHEET

According to 29 CFR 1910.1200 Hazard Communication Standard 2012 (HazCom 2012)

7647-01-0

Product identifier				
Product name	Hydrochloric Acid .12N			
Product number	R-0724; R-0724-PL			
Recommended use and restrictions	To be used in accordance with manufacturer instructions or under the direct guidance of the manufacturer.			
Manufacturer	Taylor Technologies, Inc. 31 Loveton Circle Sparks, MD 21152 Phone: (410) 472-4340 Emergency phone: (800) 837-85	548		
CTION 2: Hazard(s) ide	entification			
Physical hazards	Corrosive to metals	Category 1		
Health hazards	Eye damage/irritation	Category 1		
	Skin corrosion/irritation	Category 1B		
	Specific target organ toxicity, single exposure	Category 3 Respiratory tract irritation		
Environmental hazards	No data available			
Label elements				
Signal word				
Signal word	Danger			
Hazard statements	May be corrosive to metals. Cat irritation.	uses severe skin burns and eye damage. May ca	ause respiratory	
Precautionary statements				
Prevention		Do not breathe dusts or mists. Wash skin thorou entilated area. Wear protective gloves/protective act is likely to occur.		
Response	vomiting. IF ON SKIN (OR HAIF water. Wash contaminated cloth keep comfortable for breathing. Rinse cautiously with water for s	rial damage. IF SWALLOWED: Rinse mouth. Do R): Take off immediately all contaminated clothin ing before reuse. IF INHALED: Remove person Immediately call a physician or poison control co several minutes. Remove contact lenses if prese all a physician or poison control center.	g. Rinse skin witl to fresh air and enter. IF IN EYES	
Storage	Store in corrosive-resistant container with a corrosive-resistant inner liner. Keep tightly capped. Store out of direct sunlight between 36°F–85°F. Store in a well ventilated place. Store locked up.			
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.			
Hazards not otherwise classified	No data available			
CTION 3: Composition	/information on ingredient	S		
Mixture				
Mixture Chemical name	Common name and synonym	s CAS number	%	

Not available

Hydrochloric acid

<1

SECTION 4: First-aid measures

If inhaled

Remove individual to fresh air. Seek medical attention if breathing becomes difficult or if respiratory irritation develops. Give oxygen or artificial respiration if needed.

In case of skin contact

Immediately flush skin with plenty of water for at least 20 minutes. If clothing comes in contact with the product, the clothing should be removed and laundered before reuse. Seek medical attention if irritation develops. Chemical burns must be treated by a physician.

In case of eye contact

Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

If swallowed

Call a physician or poison control center immediately. Rinse mouth. Never give anything by mouth to a person who is unconscious or is having convulsions. Do NOT induce vomiting unless directed by physician. If vomiting occurs, keep head low so that stomach content does not get into the lungs.

Most important symptoms and effects, both acute and delayed

Refer to section 2 and/or section 11 of the SDS for the most important known symptoms and effects.

Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep person under observation. Symptoms may be delayed.

General information

Ensure medical personnel are aware of the material(s) involved and take precautions to protect themselves.

SECTION 5: Firefighting measures

Extinguishing media Suitable extinguishing media	Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	Do not use a heavy water stream. Use of heavy stream of water may spread fire.
Specific hazards arising from the substance or mixture	
Fire hazard	Not flammable
Explosion hazard	Not explosive
Reactivity	May be corrosive to metals
Hazardous combustion products	Hydrogen chloride gas
Advice for firefighters	
Precautionary measures	Exercise caution when fighting any chemical fire; hazardous fumes will be present.
Firefighting equipment/instructions	Use water spray or fog for cooling exposed containers.
Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	Refer to section 9 of the SDS for flammability properties.

SECTION 6: Accidental release measures

Personal precautions, protective equipment, and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during cleanup. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protective equipment, refer to section 8 of the SDS.

Environmental precautions

Avoid discharge into drains, watercourses, or onto the ground.

Methods and material for containment and cleaning up

Dike the spilled material where this is possible. Stop leak if it can be done without risk. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth, and place into containers. Prevent entry into waterways, sewers, basements, or confined areas. Following product recovery, flush area with water. Dilute acid with water and neutralize with dilute base. If not recoverable, dilute with water or flush to holding area and neutralize. Contaminated absorbent material may pose the same hazards as the spilled product. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Reference to other sections

For exposure controls and personal protection, refer to section 8 of the SDS. For waste disposal, refer to section 13 of the SDS.

SECTION 7: Handling and storage

Personal precautions, protective equipment, and emergency procedures

Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. For personal protective equipment, refer to section 8 of the SDS. Keep away from incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

Conditions for safe storage, including any incompatibilities

Store in corrosive-resistant container with a corrosive-resistant inner liner. Keep tightly capped. Store out of direct sunlight between 36°F–85°F. Store in a well ventilated place. Store locked up. Store away from incompatible materials (refer to section 10 of the SDS).

SECTION 8: Exposure controls/personal protection

Occupational exposure limits

ACGIH Threshold Limit Values

Components		Туре	Value	Form
Hydrochloric acid (CAS 7647-01-0)		Ceiling	2 ppm	Not applicable
NIOSH: Pocket Guide to Ch	emical Hazards			
Components		Туре	Value	Form
Hydrochloric acid (CAS 7647-01-0)		Ceiling	7 mg/m ³ 5 ppm	Not applicable Not applicable
OSHA Table Z-1 Limits for A	Air Contaminants	(29 CFR 1910.1000)		
Components		Туре	Value	Form
Hydrochloric acid (CAS 764	47-01-0)	Ceiling	7 mg/m ³ 5 ppm	Not applicable Not applicable
Biological limit values	No biological ex	posure limits noted for the	e ingredient(s)	
Exposure controls Appropriate engineering controls	be matched to o engineering cor limits have not	conditions. If applicable, us not	se process enclosures, levels below recommer n airborne levels to an a	Id be used. Ventilation rates shou local exhaust ventilation, or other nded exposure limits. If exposure acceptable level. Eyewash facilities oduct.
Personal protective equipment				
Eye/face protection	Wear appropriate chemical safety goggles if contact is likely to occur.			ccur.
Skin protection	Wear appropriate chemical-resistant gloves and clothing if contact is likely to occur.			
Body protection	Wear appropriate protective clothing.			
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fumes at levels exceeding the exposulimits. Advice should be sought from respiratory protection suppliers.		levels exceeding the exposure	

SECTION 9: Physical and chemical properties

CTION 9: Physical and	chemical prope
Information on basic physical and chemical properties	l
Physical state	Liquid
Form	Liquid
Color	Clear, colorless
Odor	Odorless
Odor threshold	No data available
рН	1.1
Evaporation rate	No data available
Melting point	No data available
Freezing point	No data available
Boiling point	212°F (100°C)
Flash point	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	No data available

Vapor pressure	17 mm Hg		
Relative vapor density	1.3		
Solubility	Soluble in all propo	ortions	
Partition coefficient	No data available		
(n-octanol/water)			
Viscosity	No data available		
Explosive properties	No data available		
Oxidizing properties	No data available		
CTION 10: Stability and r	eactivity		
Reactivity	May be corrosive to	o metals	
Chemical stability	Stable under recom	nmended handling and	storage conditions (refer to section 7 of the SDS)
Possibility of hazardous reactions	No dangerous reac	tion known under cond	itions of normal use
Conditions to avoid	Contact with incom	patible materials. Do no	ot use in areas without adequate ventilation.
Incompatible materials	Cesium carbide, me	etals, and sodium	
CTION 11: Toxicological	information		
Information on toxicological			
effects			
Inhalation	5	n to the respiratory system	em
Skin contact	Causes severe skir	n burns	
Eye contact	Causes serious eye	e damage	
Ingestion	Causes digestive tr	act burns	
Most important symptoms/effects, acute and	Direct skin contact scarring.	may cause corrosive sk	in burns, deep ulcerations, and possibly permanent
delayed			may be corrosive to the eyes and may cause severe hay include stinging, tearing, redness, swelling, and blue
	and wheezing. Inha	alation could result in pu	atory irritation. Symptoms may include coughing, choki Imonary edema (fluid accumulation). Symptoms of f breath) may be delayed.
	Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus, and possibly the digestive tract. Symptoms may include abdominal pain, vomiting, burns, perforations, bleeding.		
Acute toxicity	This product is not o toxicity data.	classified as an acute to	exicity hazard. See below for individual ingredient acute
Components		Species	Test Results
Hydrochloric acid (CAS 7647-01	-0)	-	
Acute	,		
Dermal			
LD ₅₀		Mouse	1449 mg/kg
Inhalation			
LC ₅₀		Mouse	1108 ppm, 1 hour
LC ₅₀		Rat	3124 ppm, 1 hour
Oral			
LD ₅₀ LD ₅₀		Rabbit Rat	900 mg/kg 238–277 mg/kg
Respiratory or skin sensitization	No data available		
Germ cell mutagenicity	No data available		
Carcinogenicity	No data available		
- · ·	No data available		
Reproductive toxicitv			
Reproductive toxicity Specific target organ toxicity (single exposure)	May cause respirate	ory irritation	

SECTION 12: Ecological information

This product is not classified as environmentally hazardous; however, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

SECTION 13: Disposal considerations

Collect and reclaim or dispose of in sealed containers at a licensed waste disposal site. Since emptied containers may retain product residue, follow label warnings even after container is emptied. This material and its container must be disposed of in a safe manner. Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

DOT	
UN number	UN1789
UN proper shipping name	Hydrochloric acid
Transport hazard class(es)	
Class Subsidiary risk	8 Not listed
Label(s)	8
Packing group	
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.
Special provisions	A3, A6, B3, B15, IB2, N41, T8, TP2, TP12
Packaging exceptions	154
Packaging, non-bulk	202
Packaging, bulk	242
IATA	
UN number	UN1789
UN proper shipping name Transport hazard class(es)	Hydrochloric acid
Class	8
Subsidiary risk	Not listed
Packing group	l
Environmental hazards	Not listed
ERG code	8L
Special precautions for user Other information	Read safety instructions, SDS, and emergency procedures before handling.
Passenger and cargo	Allowed
aircraft	
Cargo aircraft only	Allowed
IMDG	
UN number	UN1789
UN proper shipping name	Hydrochloric acid
Transport hazard class(es)	0
Class Subsidiary risk	8 Not listed
Packing group	
Environmental hazards	
Marine pollutant	Not listed
EmS	F-A, S-B
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.
Transport in bulk according	This substance/mixture is not intended to be transported in bulk.
to Annex II of MARPOL 73/78 and the IBC Code	
DOT	

IATA; IMDG



SECTION 15: Regulatory information

U.S. federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CERCLA Hazardous Substance (40 CFR 302.4) Hydrochloric acid (CAS 7647-01-0)

SARA 302 Extremely Hazardous Substance Hydrochloric acid (CAS 7647-01-0)

SARA 304 Emergency Release Notification Hydrochloric acid (CAS 7647-01-0)

U.S. state regulations

Massachusetts Right-to-Know Act Hydrochloric acid (CAS 7647-01-0)

New Jersey Worker and Community Right-to-Know Act Hydrochloric acid (CAS 7647-01-0)

Pennsylvania Worker and Community Right-to-Know Act Hydrochloric acid (CAS 7647-01-0)

Rhode Island Right-to-Know Act Hydrochloric acid (CAS 7647-01-0)

SECTION 16: Other information

NFPA Rating	
Health hazard	1
Fire hazard	0
Reactivity	0
Specific	N/A

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Issue date: May 2015

Last revisions July 2016



SAFETY DATA SHEET

According to 29 CFR 1910.1200 Hazard Communication Standard 2012 (HazCom 2012)

SECTION 1: Identification

Product identifier	
Product name	Hardness Reagent
Product number	R-0683; R-0683-PL
Recommended use and restrictions	To be used in accordance with manufacturer instructions or under the direct guidance of the manufacturer.
Manufacturer	Taylor Technologies, Inc. 31 Loveton Circle Sparks, MD 21152 Phone: (410) 472-4340 Emergency phone: (800) 837-8548
ECTION 2: Hazard(s) id	entification

SE

Physical hazards	No data available
Health hazards	No data available
Environmental hazards	No data available
Label elements Hazard pictograms	No data available
Signal word	No data available
Hazard statements	No data available
Precautionary statements	
Prevention	No data available
Response	No data available
Storage	Keep tightly capped. Store out of direct sunlight between 36°F–85°F.
Disposal	No data available
Hazards not otherwise classified	Avoid contact with skin, eyes, or clothing. For contact with skin or eyes, flush 20 minutes with water. If ingested, contact physician or local poison control center. Treat symptoms as needed.

SECTION 3: Composition/information on ingredients

WIXLUIE			
Chemical name	Common name and synonyms	CAS number	%
Water	Dihydrogen oxide	7732-18-5	95–99
Ethylenediaminetetraacetic acid EDTA		60-00-4	0.1–5
Other components below reportable levels			0.01–0.1

SECTION 4: First-aid measures

If inhaled

Mixtura

Remove individual to fresh air. Seek medical attention if breathing becomes difficult or if respiratory irritation develops. Give oxygen or artificial respiration if needed.

In case of skin contact

Immediately flush skin with plenty of water for at least 20 minutes. If clothing comes in contact with the product, the clothing should be removed and laundered before reuse. Seek medical attention if irritation develops.

In case of eye contact

Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses if present and easy to do. Continue rinsing. If symptoms persist or in all cases of concern, seek medical advice.

If swallowed

Rinse mouth. Never give anything by mouth to a person who is unconscious or is having convulsions. Do NOT induce vomiting unless directed by physician. If vomiting occurs, keep head low so that stomach content does not get into the lungs. If symptoms persist or in all cases of concern, seek medical advice.

Most important symptoms and effects, both acute and delayed

Refer to section 2 and/or section 11 of the SDS for the most important known symptoms and effects.

Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

General information

Ensure medical personnel are aware of the material(s) involved and take precautions to protect themselves.

SECTION 5: Firefighting measures

Extinguishing media Suitable extinguishing mediaUse extinguishing media appropriate for surrounding fire.Unsuitable extinguishing mediaDo not use a heavy water stream. Use of heavy stream of water may spread fire.Specific hazards arising from the substance or mixture Fire hazardNot flammableExplosion hazardNot explosiveReactivityHazardous reactions will not occur under normal conditions.Hazardous combustion productsHydrogen chloride gas and magnesium oxidePrecautionary measuresExercise caution when fighting any chemical fire; hazardous fumes will be present.Firefighting equipment/instructionsUse water spray or fog for cooling exposed containers.Protection during firefighting Other informationDo not enter fire area without proper protective equipment, including respiratory protection.Refer to section 9 of the SDS for flammability properties.SECTION 6: Accidental release measures		onon o. Thenghung me	
mediaSpecific hazards arising from the substance or mixture Fire hazardNot flammableFire hazardNot flammableExplosion hazardNot explosiveReactivityHazardous reactions will not occur under normal conditions.Hazardous combustion productsHydrogen chloride gas and magnesium oxidePrecautionary measuresExercise caution when fighting any chemical fire; hazardous fumes will be present.Firefighting equipment/instructionsUse water spray or fog for cooling exposed containers.Protection during firefighting other informationDo not enter fire area without proper protective equipment, including respiratory protection.Refer to section 9 of the SDS for flammability properties.Refer to section 9 of the SDS for flammability properties.			Use extinguishing media appropriate for surrounding fire.
the substance or mixtureFire hazardNot flammableExplosion hazardNot explosiveReactivityHazardous reactions will not occur under normal conditions.Hazardous combustion productsHydrogen chloride gas and magnesium oxidePrecautionary measuresExercise caution when fighting any chemical fire; hazardous fumes will be present.Firefighting equipment/instructionsUse water spray or fog for cooling exposed containers.Protection during firefighting Other informationDo not enter fire area without proper protective equipment, including respiratory protection.Refer to section 9 of the SDS for flammability properties.Refer to section 9 of the SDS for flammability properties.			Do not use a heavy water stream. Use of heavy stream of water may spread fire.
Explosion hazardNot explosiveReactivityHazardous reactions will not occur under normal conditions.Hazardous combustion productsHydrogen chloride gas and magnesium oxideAdvice for firefighters Precautionary measuresExercise caution when fighting any chemical fire; hazardous fumes will be present.Firefighting equipment/instructionsUse water spray or fog for cooling exposed containers.Protection during firefighting Other informationDo not enter fire area without proper protective equipment, including respiratory protection.Refer to section 9 of the SDS for flammability properties.Refer to section 9 of the SDS for flammability properties.		the substance or mixture	Not flammable
ReactivityHazardous reactions will not occur under normal conditions.Hazardous combustion productsHydrogen chloride gas and magnesium oxideAdvice for firefighters Precautionary measuresExercise caution when fighting any chemical fire; hazardous fumes will be present.Firefighting equipment/instructionsExercise caution when fighting exposed containers.Protection during firefighting Other informationDo not enter fire area without proper protective equipment, including respiratory protection.Refer to section 9 of the SDS for flammability properties.Refer to section 9 of the SDS for flammability properties.			
Hazardous combustion productsHydrogen chloride gas and magnesium oxideAdvice for firefighters Precautionary measuresExercise caution when fighting any chemical fire; hazardous fumes will be present. Use water spray or fog for cooling exposed containers.Firefighting equipment/instructionsDo not enter fire area without proper protective equipment, including respiratory protection. Refer to section 9 of the SDS for flammability properties.		Explosion hazard	not explosive
productsAdvice for firefighters Precautionary measuresExercise caution when fighting any chemical fire; hazardous fumes will be present.Firefighting equipment/instructionsExercise caution when fighting any chemical fire; hazardous fumes will be present.Protection during firefighting Other informationDo not enter fire area without proper protective equipment, including respiratory protection.Refer to section 9 of the SDS for flammability properties.		Reactivity	Hazardous reactions will not occur under normal conditions.
Precautionary measuresExercise caution when fighting any chemical fire; hazardous fumes will be present.Firefighting equipment/instructionsUse water spray or fog for cooling exposed containers.Protection during firefighting Other informationDo not enter fire area without proper protective equipment, including respiratory protection.Refer to section 9 of the SDS for flammability properties.			Hydrogen chloride gas and magnesium oxide
Precautionary measuresExercise caution when fighting any chemical fire; hazardous fumes will be present.Firefighting equipment/instructionsUse water spray or fog for cooling exposed containers.Protection during firefighting Other informationDo not enter fire area without proper protective equipment, including respiratory protection.Refer to section 9 of the SDS for flammability properties.		Advice for firefighters	
equipment/instructionsProtection during firefightingDo not enter fire area without proper protective equipment, including respiratory protection.Other informationRefer to section 9 of the SDS for flammability properties.		-	Exercise caution when fighting any chemical fire; hazardous fumes will be present.
Other information Refer to section 9 of the SDS for flammability properties.		5 5	Use water spray or fog for cooling exposed containers.
		Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection.
SECTION 6. Accidental release measures		Other information	Refer to section 9 of the SDS for flammability properties.
	SE	CTION 6: Accidental rele	ase measures

Personal precautions, protective equipment, and emergency procedures

Wear appropriate protective equipment and clothing during cleanup. Local authorities should be advised if significant spillages cannot be contained. For personal protective equipment, refer to section 8 of the SDS.

Environmental precautions

Avoid discharge into drains, watercourses, or onto the ground.

Methods and material for containment and cleaning up

Dike the spilled material where this is possible. Stop leak if it can be done without risk. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth, and place into containers. Prevent entry into waterways, sewers, basements, or confined areas. Following product recover, flush area with water. Never return spills to original containers for reuse. Contaminated absorbent material may pose the same hazards as the spilled product. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Reference to other sections

For exposure controls and personal protection, refer to section 8 of the SDS. For waste disposal, refer to section 13 of the SDS.

SECTION 7: Handling and storage

Personal precautions, protective equipment, and emergency procedures

Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. For personal protective equipment, refer to section 8 of the SDS. Keep away from incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

Conditions for safe storage, including any incompatibilities

Keep tightly capped. Store out of direct sunlight between 36°F-85°F. Store away from incompatible materials (refer to section 10 of the SDS).

SECTION 8: Exposure controls/personal protection

Occupational exposure limits No occupational exposure limits noted for the ingredient(s)

Biological limit values No biological exposure limits noted for the ingredient(s)

Exposure controls

controls

Appropriate engineering Good general ventilation (typically 10 air changes per hour) 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. Eyewash facilities and emergency shower must be available when handling this product.

Personal protective equipment	
Eye/face protection	Wear appropriate chemical safety goggles if contact is likely to occur.
Skin protection	Wear appropriate chemical-resistant gloves and clothing if contact is likely to occur.
Body protection	Wear appropriate protective clothing.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fumes at levels exceeding the exposure limits. Advice should be sought from respiratory protection suppliers.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Liquid
Form	Liquid
Color	Clear, colorless or nearly colorless
Odor	Odorless
Odor threshold	No data available
pH	8.1
Evaporation rate	No data available
Melting point	No data available
Freezing point	No data available
Boiling point	212°F (100°C)
Flash point	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	No data available
Vapor pressure	17 mm Hg
Relative vapor density	0.6
Solubility	Soluble in all proportions
Partition coefficient (n-octanol/water)	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
CTION 10: Stability and r	reactivity
Reactivity	Hazardous reactions will not occur under normal conditions.
Chemical stability	Stable under recommended handling and storage conditions (refer to section 7 of the SDS)
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use
Conditions to avoid	Contact with incompatible materials. Do not use in areas without adequate ventilation.
Incompatible materials	Acids, metals, and strong oxidizing agents
CTION 11: Toxicological	information
Information on toxicological	
effects	
Inhalation	May cause irritation to the respiratory system
Skin contact	May cause slight or mild transient irritation
Eye contact	May cause slight or mild transient irritation
Ingestion	May cause irritation, nausea, vomiting, and diarrhea
Most important symptoms/effects, acute and	Direct skin contact may cause slight or mild transient irritation. Symptoms may include redness an itching.
lelayed	Direct eye contact may cause slight or mild transient irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Ingestion may cause gastrointestinal irritation, nausea, vomiting, and diarrhea.

Acute toxicity

This product is not classified as an acute toxicity hazard. See below for individual ingredient acute toxicity data.

	toxiony data.			
Components		Species	Test Results	
Ethylenediaminetetraacetic acid	I (CAS 60-00-4)			
Acute				
Oral				
LD ₅₀		Rat	4500 mg/kg	
Acute toxicity	No data available			
Respiratory or skin sensitization	No data available			
Germ cell mutagenicity	No data available			
Carcinogenicity	No data available			
Reproductive toxicity	No data available			
Specific target organ toxicity (single exposure)	No data available			
Specific target organ toxicity (repeated exposure)	No data available			
Aspiration hazard	No data available			

SECTION 12: Ecological information

This product is not classified as environmentally hazardous; however, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

SECTION 13: Disposal considerations

Collect and reclaim or dispose of in sealed containers at a licensed waste disposal site. Since emptied containers may retain product residue, follow label warnings even after container is emptied. This material and its container must be disposed of in a safe manner. Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

No data available

SECTION 15: Regulatory information

No data available

SECTION 16: Other information

NFPA Rating	
Health hazard	0
Fire hazard	0
Reactivity	0
Specific	N/A

Disclaimer

The information in the Safety Data Sheet is offered for your consideration and guidance for safe handling, use, storage, transportation, disposal, and release of this product and is not considered a warranty or quality specification. Taylor Technologies, Inc., disclaims all expressed or implied warranties and assumes no responsibility for the accuracy of completeness of the data contained herein. The data in this SDS does not apply to use with any other product or in any other process.

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Issue date: April 2015

Last revision June 2016



SAFETY DATA SHEET

According to 29 CFR 1910.1200 Hazard Communication Standard 2012 (HazCom 2012)

SECTION 1: Identification

Product identifier		
Product name	Iodide Iodate Reagent	
Product number	R-0808; R-0808-PL	
Recommended use and restrictions	To be used in accordance with manufacturer instructions or under the direct guidance of the manufacturer.	
Manufacturer	Taylor Technologies, Inc. 31 Loveton Circle Sparks, MD 21152 Phone: (410) 472-4340 Emergency phone: (800) 837-8548	
CTION 2: Hazard(s) ide	entification	
Physical hazards	No data available	
Health hazards	Eye damage/irritation Category 2A	
	Skin corrosion/irritation Category 2	
Environmental hazards	No data available	
Label elements Hazard pictograms		
Signal word	Warning	
Hazard statements	Causes skin irritation. Causes serious eye irritation.	
Precautionary statements		
Prevention	Wash skin thoroughly after handling. Wear protective gloves/protective clothing/eye protection protection if contact is likely to occur.	ı/fac
Response	IF ON SKIN: Wash with plenty of water. IF SKIN IRRITATION OCCURS: Get medical advice/attention. Take off all contaminated clothing and wash it before reuse. IF IN EYES: Rir cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. IF EYE IRRITATION PERSISTS: Get medical advice/attention.	se
Storage	Keep tightly capped. Store out of direct sunlight between 36°F–85°F.	
Disposal	No data available	
Hazards not otherwise classified	No data available	

SECTION 3: Composition/information on ingredients

Mixture			0/
Chemical name	Common name and synonyms	CAS number	%
Water	Dihydrogen oxide	7732-18-5	99
Potassium hydroxide	Not available	1310-58-3	0.01–0.1
Other components below reportable levels			0.1–1

SECTION 4: First-aid measures

If inhaled

Remove individual to fresh air. Seek medical attention if breathing becomes difficult or if respiratory irritation develops. Give oxygen or artificial respiration if needed.

In case of skin contact

Immediately flush skin with plenty of water for at least 20 minutes. If clothing comes in contact with the product, the clothing should be removed and laundered before reuse. Seek medical attention if irritation develops.

In case of eye contact

Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses if present and easy to do. Continue rinsing. If symptoms persist or in all cases of concern, seek medical advice.

If swallowed

Rinse mouth. Never give anything by mouth to a person who is unconscious or is having convulsions. Do NOT induce vomiting unless directed by physician. If vomiting occurs, keep head low so that stomach content does not get into the lungs. If symptoms persist or in all cases of concern, seek medical advice.

Most important symptoms and effects, both acute and delayed

Refer to section 2 and/or section 11 of the SDS for the most important known symptoms and effects.

Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

General information

Ensure medical personnel are aware of the material(s) involved and take precautions to protect themselves.

SECTION 5: Firefighting measures

	454105
Extinguishing media Suitable extinguishing media	Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	Do not use a heavy water stream. Use of heavy stream of water may spread fire.
Specific hazards arising from the substance or mixture Fire hazard	Not flammable
Explosion hazard	Not explosive
Reactivity	Hazardous reactions will not occur under normal conditions.
Hazardous combustion products	lodine and potassium oxide
Advice for firefighters	
Precautionary measures	Exercise caution when fighting any chemical fire; hazardous fumes will be present.
Firefighting equipment/instructions	Use water spray or fog for cooling exposed containers.
Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	Refer to section 9 of the SDS for flammability properties.

SECTION 6: Accidental release measures

Personal precautions, protective equipment, and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during cleanup. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protective equipment, refer to section 8 of the SDS.

Environmental precautions

Avoid discharge into drains, watercourses, or onto the ground.

Methods and material for containment and cleaning up

Dike the spilled material where this is possible. Stop leak if it can be done without risk. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth, and place into containers. Prevent entry into waterways, sewers, basements, or confined areas. Following product recovery, flush area with water to remove residual contamination.

Never return spills to original containers for reuse. Contaminated absorbent material may pose the same hazards as the spilled product.

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Reference to other sections

For exposure controls and personal protection, refer to section 8 of the SDS. For waste disposal, refer to section 13 of the SDS.

SECTION 7: Handling and storage

Precautions for safe handling

Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. For personal protective equipment, refer to section 8 of the SDS. Keep away from incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

Conditions for safe storage, including any incompatibilities

Keep tightly capped. Store out of direct sunlight between 36°F–85°F. Store away from incompatible materials (refer to section 10 of the SDS).

NIOSH: Pocket Guide to Ch	emical Hazards			
Components		Туре	Value	Form
Potassium hydroxide (CAS 1310-58-3)		TWA	2 mg/m ³	Not applicable
OSHA Table Z-1 Limits for A		9 CFR 1910.1000)	5	
Components		Туре	Value	Form
Potassium hydroxide (CAS	5 1310-58-3)	PEL	2 mg/m ³	Not applicable
Biological limit values	No biological exp	osure limits noted for th	e ingredient(s)	
Appropriate engineering controls	5		. ,	d be used. Ventilation rates sho
	engineering cont limits have not be	rols to maintain airborne een established, maintai	e levels below recommen	ded exposure limits. If exposure cceptable level. Eyewash faciliti
Personal protective equipment	engineering cont limits have not be	rols to maintain airborne een established, maintai	e levels below recommen in airborne levels to an a	ded exposure limits. If exposure cceptable level. Eyewash faciliti
Personal protective	engineering cont limits have not be and emergency s	rols to maintain airborne een established, maintai shower must be availabl	e levels below recommen in airborne levels to an a	
Personal protective equipment	engineering cont limits have not be and emergency s Wear appropriate	rols to maintain airborne een established, maintai shower must be availabl e chemical safety goggle	e levels below recommen n airborne levels to an ac e when handling this pro	ded exposure limits. If exposure cceptable level. Eyewash faciliti duct.
Personal protective equipment Eye/face protection	engineering cont limits have not be and emergency s Wear appropriate Wear appropriate	rols to maintain airborne een established, maintai shower must be availabl e chemical safety goggle	e levels below recommen n airborne levels to an ac e when handling this pro- es if contact is likely to oc	ded exposure limits. If exposure cceptable level. Eyewash faciliti duct.

SECTION 9: Physical and chemical properties

Information on basic physical

and chemical properties	
Physical state	Liquid
Form	Liquid
Color	Clear, colorless
Odor	Odorless
Odor threshold	No data available
рН	12
Evaporation rate	No data available
Melting point	No data available
Freezing point	No data available
Boiling point	212°F (100°C)
Flash point	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	No data available
Vapor pressure	17 mm Hg
Relative vapor density	0.6
Solubility	Soluble in all proportions
Partition coefficient (n-octanol/water)	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

SECTION 10: Stability and reactivity

Hazardous reactions will not occur under normal conditions.

Chemical stability	Stable under recommended handling and storage conditions (refer to section 7 of the SDS)
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use
Conditions to avoid Incompatible materials	Contact with incompatible materials. Do not use in areas without adequate ventilation. Strong acids

SECTION 11: Toxicological information

Information on toxicological effects				
Inhalation	May cause irritation t	o the respiratory system		
Skin contact	May cause slight or r	nild transient irritation		
Eye contact	May cause serious ir	ritation		
Ingestion	May cause irritation,	nausea, vomiting, and diarrhe	a	
Most important symptoms/effects, acute and		ay cause slight or mild transie	ent irritation. Symptoms may include redness and	
delayed	Direct eye contact may cause slight or mild transient irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.			
	Inhalation of mists ca difficulties.	n cause respiratory irritation.	Symptoms may include coughing and breathing	
	Ingestion may cause	gastrointestinal irritation, nau	sea, vomiting, and diarrhea.	
Acute toxicity	This product is not cla toxicity data.	assified as an acute toxicity h	azard. See below for individual ingredient acute	
Components		Species	Test Results	
Potassium hydroxide (CAS 131	0-58-3)			
Acute				
Oral				
LD ₅₀		Rat	273 mg/kg	
Respiratory or skin sensitization	No data available			
Germ cell mutagenicity	No data available			
Carcinogenicity	No data available			
Reproductive toxicity	No data available			
Specific target organ toxicity (single exposure)	No data available			
Specific target organ toxicity (repeated exposure)	No data available			
Aspiration hazard	No data available			

SECTION 12: Ecological information

This product is not classified as environmentally hazardous; however, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

SECTION 13: Disposal considerations

Collect and reclaim or dispose of in sealed containers at a licensed waste disposal site. Since emptied containers may retain product residue, follow label warnings even after container is emptied. This material and its container must be disposed of in a safe manner. Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

DOT	Not regulated as a dangerous good
ΙΑΤΑ	Not regulated as a dangerous good
IMDG	Not regulated as a dangerous good

SECTION 15: Regulatory information

U.S. federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CERCLA Hazardous Substance (40 CFR 302.4)

Potassium hydroxide (CAS 1310-58-3)

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Immediate hazard	Yes
Delayed hazard	No
Fire hazard	No
Pressure hazard	No
Reactivity hazard	Yes

U.S. state regulations

Massachusetts Right-to-Know Act Potassium hydroxide (CAS 1310-58-3)

Pennsylvania Worker and Community Right-to-Know Act Potassium hydroxide (CAS 1310-58-3)

Rhode Island Right-to-Know Act

Potassium hydroxide (CAS 1310-58-3)

SECTION 16: Other information

NFPA Rating	
Health hazard	0
Fire hazard	0
Reactivity	0
Specific	N/A

Disclaimer

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Issue date: May 2015

Last revisions April 2016



SAFETY DATA SHEET

According to 29 CFR 1910.1200 Hazard Communication Standard 2012 (HazCom 2012)

SECTION 1: Identification

Product identifier Product name	Silver Nitrate Reagent
Product number	R-0807
Recommended use and restrictions	To be used in accordance with manufacturer instructions or under the direct guidance of the manufacturer.
Manufacturer	Taylor Technologies, Inc. 31 Loveton Circle Sparks, MD 21152 Phone: (410) 472-4340 Emergency phone: (800) 837-8548
ECTION 2: Hazard(s) id	lentification

Physical hazards Oxidizing liquids Category 2 **Health hazards** No data available **Environmental hazards** No data available Label elements Hazard pictograms Signal word Danger Hazard statements May intensify fire; oxidizer. Precautionary statements Prevention Keep away from heat. Keep/store away from clothing, combustible material, and organics. Take any precaution to avoid mixing with combustibles and organics. Wear protective gloves/protective clothing/eye protection/face protection if contact is likely to occur. Response IN CASE OF FIRE: Use carbon dioxide, dry chemical powder, foam, or water fog to extinguish. Storage Keep tightly capped. Store out of direct sunlight between 36°F-85°F. Disposal Dispose of contents/container in accordance with local/regional/national/international regulations. Hazards not otherwise No data available classified SECTION 3: Composition/information on ingredients

Mixture			
Chemical name	Common name and synonyms	CAS number	%
Water	Dihydrogen oxide	7732-18-5	95–99
Silver nitrate	Not available	7761-88-8	0.1–5

If inhaled

Remove individual to fresh air. Seek medical attention if breathing becomes difficult or if respiratory irritation develops. Give oxygen or artificial respiration if needed.

In case of skin contact

Immediately flush skin with plenty of water for at least 20 minutes. If clothing comes in contact with the product, the clothing should be removed and laundered before reuse. Seek medical attention if irritation develops.

In case of eye contact

Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses if present and easy to do. Continue rinsing. If symptoms persist or in all cases of concern, seek medical advice.

If swallowed

Rinse mouth. Never give anything by mouth to a person who is unconscious or is having convulsions. Do NOT induce vomiting unless directed by physician. If vomiting occurs, keep head low so that stomach content does not get into the lungs. If symptoms persist or in all cases of concern, seek medical advice.

Most important symptoms and effects, both acute and delayed

Refer to section 2 and/or section 11 of the SDS for the most important known symptoms and effects.

Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

General information

Ensure medical personnel are aware of the material(s) involved and take precautions to protect themselves.

SECTION 5: Firefighting measures

Extinguishing media Suitable extinguishing media	Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	Do not use a heavy water stream. Use of heavy stream of water may spread fire.
Specific hazards arising from the substance or mixture Fire hazard	May intensify fire; oxidizer.
Explosion hazard	Not explosive
Reactivity	Hazardous reactions will not occur under normal conditions.
Hazardous combustion products	Nitrogen oxides
Advice for firefighters	
Precautionary measures	Exercise caution when fighting any chemical fire; hazardous fumes will be present.
Firefighting equipment/instructions	Use water spray or fog for cooling exposed containers.
Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	Refer to section 9 of the SDS for flammability properties.

SECTION 6: Accidental release measures

Personal precautions, protective equipment, and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during cleanup. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protective equipment, refer to section 8 of the SDS.

Environmental precautions

Avoid discharge into drains, watercourses, or onto the ground.

Methods and material for containment and cleaning up

Dike the spilled material where this is possible. Stop leak if it can be done without risk. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth, and place into containers. Prevent entry into waterways, sewers, basements, or confined areas. Following product recovery, flush area with water to remove residual contamination. Never return spills to original containers for reuse. Contaminated absorbent material may pose the same hazards as the spilled product. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Reference to other sections

For exposure controls and personal protection, refer to section 8 of the SDS. For waste disposal, refer to section 13 of the SDS.

SECTION 7: Handling and storage

Precautions for safe handling

Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. For personal protective equipment, refer to section 8 of the SDS. Keep away from incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

Conditions for safe storage, including any incompatibilities

Keep tightly capped. Store out of direct sunlight between 36°F–85°F. Store away from incompatible materials (refer to section 10 of the SDS).

SECTION 8: Exposure controls/perso	onal protection			
Occupational exposure limits				
ACGIH Threshold Limit Values				
Components	Туре	Value	Form	
Silver nitrate (CAS 7761-88-8)	TWA	0.01 mg/m ³	as Aq	

Components		Туре	Value	Form
Silver nitrate (CAS 7761-88-8)		TWA	0.01 mg/m ³	Dust as Ag
OSHA Table Z-1 Limits for /	Air Contaminants	(29 CFR 1910.1000)		
Components		Туре	Value	Form
Silver nitrate (CAS 7761-88	8-8)	PEL	0.01 mg/m ³	as Ag
Biological limit values	No biological e	posure limits noted for th	e ingredient(s)	
Appropriate engineering controls	be matched to o engineering cor limits have not l	conditions. If applicable, un ntrols to maintain airborne been established, maintai	se process enclosures, lo levels below recommend	be used. Ventilation rates shoul cal exhaust ventilation, or other ed exposure limits. If exposure ceptable level. Eyewash facilities uct.
Personal protective equipment				
Eye/face protection	Wear appropria	te chemical safety goggle	es if contact is likely to occ	ur.
Skin protection	Wear appropria	te chemical-resistant glov	es and clothing if contact	is likely to occur.
Body protection	Wear appropria	te protective clothing.		
Respiratory protection			itable respiratory equipme	ent. Use a NIOSH/MSHA

SECTION 9: Physical and chemical properties

Information on basic physica and chemical properties	I
Physical state	Liquid
Form	Liquid
Color	Clear, colorless
Odor	Odorless
Odor threshold	No data available
рН	No data available
Evaporation rate	No data available
Melting point	No data available
Freezing point	No data available
Boiling point	212°F (100°C)
Flash point	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	No data available
Vapor pressure	17 mm Hg
Relative vapor density	0.6
Solubility	Soluble in all proportions
Partition coefficient (n-octanol/water)	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

SECTION 10: Stability and reactivity

Reactivity	Hazardous reactions will not occur under normal conditions.
Chemical stability	Stable under recommended handling and storage conditions (refer to section 7 of the SDS)
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use
Conditions to avoid	Contact with incompatible materials. Do not use in areas without adequate ventilation.
Incompatible materials	Combustible material and organics

SECTION 11: Toxicological information

Information on toxicological effects					
Inhalation	May cause irritation t	o the respiratory system			
Skin contact	May cause slight or r	nild transient irritation			
Eye contact	May cause slight or r	nild transient irritation			
Ingestion	May cause irritation, nausea, vomiting, and diarrhea				
Most important symptoms/effects, acute and					
delayed	-	ay cause slight or mild transient elling, and blurred vision.	irritation. Symptoms may include stinging,		
	Inhalation of mists ca difficulties.	n cause respiratory irritation. S	ymptoms may include coughing and breathing		
	Ingestion may cause	gastrointestinal irritation, nause	ea, vomiting, and diarrhea.		
Acute toxicity	This product is not cla toxicity data.	assified as an acute toxicity haz	ard. See below for individual ingredient acute		
Components		Species	Test Results		
Silver nitrate (CAS 7761-88-8)					
Acute					
Oral					
LD ₅₀		Rat	1173 mg/kg		
Respiratory or skin sensitization	No data available				
Germ cell mutagenicity	No data available				
Carcinogenicity	No data available				
Reproductive toxicity	No data available				
Specific target organ toxicity (single exposure)	No data available				
Specific target organ toxicity (repeated exposure)	No data available				
Aspiration hazard	No data available				

SECTION 12: Ecological information

This product is not classified as environmentally hazardous; however, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

SECTION 13: Disposal considerations

Collect and reclaim or dispose of in sealed containers at a licensed waste disposal site. Since emptied containers may retain product residue, follow label warnings even after container is emptied. This material and its container must be disposed of in a safe manner. Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

DOT

_		
	UN number	UN3139
	UN proper shipping name	Oxidizing liquid, N.O.S. (Silver nitrate)
	Transport hazard class(es)	
	Class	5.1
	Subsidiary risk	Not listed
	Label(s)	5.1
	Packing group	II
	Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.
	Special provisions	62, 127, A2, IB2
	Packaging exceptions	152
	Packaging, non-bulk	202
	Packaging, bulk	242
L/	ΤΑ	
	UN number	UN3139
	UN proper shipping name	Oxidizing liquid, N.O.S. (Silver nitrate)

Transport hazard class(es) Class Subsidiary risk	5.1 Not listed
Packing group	
Environmental hazards	Not listed
ERG code	5L Baad astativizations CDC and amorganize providers hardling
Special precautions for user Other information	Read safety instructions, SDS, and emergency procedures before handling.
Passenger and cargo aircraft	Allowed
Cargo aircraft only	Allowed
IMDG	
UN number	UN3139
UN proper shipping name	Oxidizing liquid, N.O.S. (Silver nitrate)
Transport hazard class(es)	
Class	5.1
Subsidiary risk	Not listed
Packing group	II
Environmental hazards	
Marine pollutant	Not listed
EmS	F-A, S-Q
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.
Transport in bulk according	This substance/mixture is not intended to be transported in bulk.

Τ to Annex II of MARPOL 73/78 and the IBC Code

DOT



IATA; IMDG

SECTION 15: Regulatory information

U.S. federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CERCLA Hazardous Substance (40 CFR 302.4) Silver nitrate (CAS 7761-88-8)

U.S. state regulations

Massachusetts Right-to-Know Act Silver nitrate (CAS 7761-88-8)

New Jersey Worker and Community Right-to-Know Act Silver nitrate (CAS 7761-88-8)

Pennsylvania Worker and Community Right-to-Know Act Silver nitrate (CAS 7761-88-8)

Rhode Island Right-to-Know Act Silver nitrate (CAS 7761-88-8)

SECTION 16: Other information

NFPA Rating

Health hazard	1
Fire hazard	0
Reactivity	0
Specific	OX

Disclaimer

The information in the Safety Data Sheet is offered for your consideration and guidance for safe handling, use, storage, transportation, disposal, and release of this product and is not considered a warranty or quality specification. Taylor Technologies, Inc., disclaims all expressed or implied warranties and assumes no responsibility for the accuracy of completeness of the data contained herein. The data in this SDS does not apply to use with any other product or in any other process.

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Issue date: May 2015

Last revisions May 2016



SAFETY DATA SHEET

According to 29 CFR 1910.1200 Hazard Communication Standard 2012 (HazCom 2012)

Product identifier			
Product name	Sulfuric Acid N		
Product number	R-0686; R-06860; R-06860-PL	; R-0686P; R-0686P-PL	
Recommended use and restrictions	To be used in accordance with manufacturer.	manufacturer instructions or under the direct g	guidance of the
Manufacturer	Taylor Technologies, Inc. 31 Loveton Circle Sparks, MD 21152 Phone: (410) 472-4340 Emergency phone: (800) 837-8	548	
CTION 2: Hazard(s) id	entification		
Physical hazards	Corrosive to metals	Category 1	
Health hazards	Eye damage/irritation	Category 1	
	Skin corrosion/irritation	Category 1B	
Environmental hazards	No data available		
Hazard pictograms			
Signal word	Danger		
Hazard statements	May be corrosive to metals. Cau	uses severe skin burns and eye damage.	
Precautionary statements			
Prevention		Do not breathe dusts or mists. Wash skin tho ve clothing/eye protection/face protection if co	
Response	vomiting. IF ON SKIN (OR HAIF water. Wash contaminated cloth keep comfortable for breathing. Rinse cautiously with water for s	rial damage. IF SWALLOWED: Rinse mouth. R): Take off immediately all contaminated cloth ing before reuse. IF INHALED: Remove pers Immediately call a physician or poison contro several minutes. Remove contact lenses if pre- all a physician or poison control center.	ning. Rinse skin wit on to fresh air and I center. IF IN EYE
Storage		ainer with a corrosive-resistant inner liner. Ke een 36°F–85°F. Store locked up.	ep tightly capped.
Disposal	Dispose of contents/container ir	accordance with local/regional/national/inter	national regulations
Hazards not otherwise classified	No data available		
CTION 3: Composition	n/information on ingredient	S	
Mixture			
		s CAS number	%
Chemical name	Common name and synonym	S CAS humber	/0

SECTION 4: First-aid measures

If inhaled

Sulfuric acid

Remove individual to fresh air. Seek medical attention if breathing becomes difficult or if respiratory irritation develops. Give oxygen or artificial respiration if needed.

7664-93-9

Hydrogen sulfate

0.1-5

In case of skin contact

Immediately flush skin with plenty of water for at least 20 minutes. If clothing comes in contact with the product, the clothing should be removed and laundered before reuse. Seek medical attention if irritation develops. Chemical burns must be treated by a physician.

In case of eye contact

Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

If swallowed

Call a physician or poison control center immediately. Rinse mouth. Never give anything by mouth to a person who is unconscious or is having convulsions. Do NOT induce vomiting unless directed by physician. If vomiting occurs, keep head low so that stomach content does not get into the lungs.

Most important symptoms and effects, both acute and delayed

Refer to section 2 and/or section 11 of the SDS for the most important known symptoms and effects.

Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep person under observation. Symptoms may be delayed.

General information

Ensure medical personnel are aware of the material(s) involved and take precautions to protect themselves.

SECTION 5: Firefighting measures

Extinguishing media Suitable extinguishing media	Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	Do not use a heavy water stream. Use of heavy stream of water may spread fire.
Specific hazards arising from the substance or mixture Fire hazard	Not flammable
Explosion hazard	Not explosive
Reactivity	May be corrosive to metals
Hazardous combustion products	Sulfur oxides
Advice for firefighters	
Precautionary measures	Exercise caution when fighting any chemical fire; hazardous fumes will be present.
Firefighting equipment/instructions	Use water spray or fog for cooling exposed containers.
Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	Refer to section 9 of the SDS for flammability properties.
CTION C. Assidental rales	

SECTION 6: Accidental release measures

Personal precautions, protective equipment, and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during cleanup. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protective equipment, refer to section 8 of the SDS.

Environmental precautions

Avoid discharge into drains, watercourses, or onto the ground.

Methods and material for containment and cleaning up

Dike the spilled material where this is possible. Stop leak if it can be done without risk. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth, and place into containers. Prevent entry into waterways, sewers, basements, or confined areas. Following product recovery, flush area with water. Small Spills: Absorb spillage with noncombustible, absorbent material. Clean surface thoroughly to remove residual contamination. Never return spills to original containers for reuse. Dilute acid with water and neutralize with dilute base. If not recoverable, dilute with water or flush to holding area and neutralize. Contaminated absorbent material may pose the same hazards as the spilled product. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Reference to other sections

For exposure controls and personal protection, refer to section 8 of the SDS. For waste disposal, refer to section 13 of the SDS.

SECTION 7: Handling and storage

Personal precautions, protective equipment, and emergency procedures

Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. For personal protective equipment, refer to section 8 of the SDS. Keep away from incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

Conditions for safe storage, including any incompatibilities

Store in corrosive-resistant container with a corrosive-resistant inner liner. Keep tightly capped. Store out of direct sunlight between 36°F–85°F. Store locked up. Store away from incompatible materials (refer to section 10 of the SDS).

Occupational exposure limi	ts			
ACGIH Threshold Limit Value	les			
Components		Туре	Value	Form
Sulfuric acid (CAS 7664-93	-9)	TWA	0.2 mg/m ³	Thoracic function
NIOSH: Pocket Guide to Ch	emical Hazards			
Components		Туре	Value	Form
Sulfuric acid (CAS 7664-93	-9)	TWA	1 mg/m ³	Not applicable
OSHA Table Z-1 Limits for A	Air Contaminants (29 CFR 1910.1000)		
Components		Туре	Value	Form
Sulfuric acid (CAS 7664-93	-9)	PEL	1 mg/m ³	Not applicable
Biological limit values	No biological ex	posure limits noted for th	e ingredient(s)	
Exposure controls Appropriate engineering controls	be matched to c engineering con limits have not b	onditions. If applicable, u trols to maintain airborne been established, maintai	use process enclosures, lo e levels below recommend	be used. Ventilation rates sho ocal exhaust ventilation, or othe led exposure limits. If exposure ceptable level. Eyewash faciliti uct.
Personal protective equipment				
	Wear appropriat	te chemical safety goggle	es if contact is likely to occ	sur.
equipment			es if contact is likely to occ ves and clothing if contact	
equipment Eye/face protection	Wear appropriat		•	

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

and chemical properties	
Physical state	Liquid
Form	Liquid
Color	Clear, colorless or nearly colorless
Odor	Odorless
Odor threshold	No data available
pН	0.6
Evaporation rate	No data available
Melting point	No data available
Freezing point	No data available
Boiling point	230°F (110°C)
Flash point	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	No data available
Vapor pressure	17 mm Hg
Relative vapor density	0.6
Solubility	Soluble in all proportions

Partition coefficient (n-octanol/water)	No data available			
Viscosity	No data available			
Explosive properties	No data available			
Oxidizing properties	No data available			
SECTION 10: Stability and r	eactivity			
Reactivity	May be corrosive to	metals		
Chemical stability	Stable under recommended handling and storage conditions (refer to section 7 of the SDS)			
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use			
Conditions to avoid	Contact with incompatible materials. Do not use in areas without adequate ventilation.			
Incompatible materials	Metal compounds, r	nitromethane, oxidizin	g agents, sugars	
SECTION 11: Toxicological	information			
Information on toxicological effects				
Inhalation	May cause irritation to the respiratory system			
Skin contact	Causes severe skin burns			
Eye contact	Causes serious eye damage			
Ingestion	Causes digestive tract burns			
Most important symptoms/effects, acute and	Direct skin contact may cause corrosive skin burns, deep ulcerations, and possibly permanent scarring.			
delayed	Direct contact with concentrated solutions may be corrosive to the eyes and may cause severe damage, including blindness. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.			
	Inhalation of mists can cause severe respiratory irritation. Symptoms may include coughing, choking, and wheezing. Inhalation could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed.			
	Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus, and possibly the digestive tract. Symptoms may include abdominal pain, vomiting, burns, perforations, bleeding. This product is not classified as an acute toxicity hazard. See below for individual ingredient acute toxicity data.			
Acute toxicity				
Components		Species	Test Results	
Sulfuric acid (CAS 7664-93-9)				
Acute				
Inhalation				
LC ₅₀		Rat	510 mg/m ³ , 2 hours	
Oral				
LD ₅₀		Rat	2140 mg/kg	
Respiratory or skin sensitization	No data available			
Germ cell mutagenicity	No data available			
Carcinogenicity	No data available			
Reproductive toxicity	No data available			
Specific target organ toxicity (single exposure)	No data available			
Specific target organ toxicity (repeated exposure)	No data available			
Aspiration hazard	No data available			
SECTION 12: Ecological inf	ormation			

This product is not classified as environmentally hazardous; however, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

SECTION 13: Disposal considerations

Collect and reclaim or dispose of in sealed containers at a licensed waste disposal site. Since emptied containers may retain product residue, follow label warnings even after container is emptied. This material and its container must be disposed of in a safe manner. Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

DOT	
UN number	UN2796
UN proper shipping name	Sulphuric acid
Transport hazard class(es)	
Class	8 Nat listed
Subsidiary risk Label(s)	Not listed 8
Packing group	8
Special precautions for user	
Special provisions	A3, A7, B15, IB2, N6, N34, T8, TP2, TP12
Packaging exceptions	154
Packaging, non-bulk	202
Packaging, bulk	242
ΙΑΤΑ	
UN number	UN2796
UN proper shipping name	Sulphuric acid
Transport hazard class(es)	
Class	8
Subsidiary risk	Not listed
Packing group Environmental hazards	Not listed
ERG code	8
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.
Other information	······································
Passenger and cargo	Allowed
aircraft	
Cargo aircraft only	Allowed
IMDG	
UN number	UN2796
UN proper shipping name	Sulphuric acid
Transport hazard class(es)	
Class Subsidiary risk	8 Not listed
Packing group	
Environmental hazards	11
Marine pollutant	Not listed
EmS	F-A, S-B
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	This substance/mixture is not intended to be transported in bulk.
DOT	
201	

IATA; IMDG



SECTION 15: Regulatory information

U.S. federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CERCLA Hazardous Substance (40 CFR 302.4)

Sulfuric acid (CAS 7664-93-9)

SARA 302 Extremely Hazardous Substance Sulfuric acid (CAS 7664-93-9)

SARA 304 Emergency Release Notification Sulfuric acid (CAS 7664-93-9)

SARA 313 (TRI Reporting) Sulfuric acid (CAS 7664-93-9)

U.S. state regulations

Massachusetts Right-to-Know Act Sulfuric acid (CAS 7664-93-9)

New Jersey Worker and Community Right-to-Know Act Sulfuric acid (CAS 7664-93-9)

Pennsylvania Worker and Community Right-to-Know Act Sulfuric acid (CAS 7664-93-9)

Rhode Island Right-to-Know Act Sulfuric acid (CAS 7664-93-9)

SECTION 16: Other information

NFPA Rating	
Health hazard	3
Fire hazard	0
Reactivity	1
Specific	N/A

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Issue date: May 2015

Last revisions July 2016