VISION
CHEMICAL SYSTEMS

REVIVE
SAFETY DATA SHEET

VALIDATION DATE: 1/5/2021

1. IDENTIFICATION

PRODUCT IDENTIFIER: REVIVE

SYNONYMS: ALUMINUM RESTORER / BRIGHTENER

MANUFACTURER / SUPPLIER: Vision Chemical Systems, Inc
16401 E 33rd Drive, Suite 30
Aurora, CO 80011

PHONE: (303) 371-7342

24-HOUR EMERGENCY PHONE NUMBER - INFOTRAC: (800) 535-5053

2. HAZARD(S) IDENTIFICATION

OSHA Hazards: Target organ effect, Toxic by inhalation, Toxic by ingestion, Highly toxic by skin absorption, Corrosive

Target Organs: Liver, Kidneys, Bone

Signal Words: Danger

Pictograms:

GHS Classification:
Acute toxicity, Oral Category 2
Acute toxicity, Inhalation Category 2
Acute toxicity, Dermal Category 1
Skin corrosion Category 1A
Serious eye damage Category 1

GHS Label Elements, including precautionary statements:

Hazard Statements:
H300+H310 Fatal if swallowed or in contact with skin.
H314 Causes severe skin burns and eye damage.
H330 Fatal if inhaled.
H402 Harmful to aquatic life

Precautionary Statements:
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P262 do not get in eyes, on skin, or on clothing.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P284 In case of inadequate ventilation, wear respiratory protection.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor. Do not induce vomitting.
P302+P352 IF ON SKIN: Wash with plenty of water.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	CAS Number	EC Number	Percent	Hazardous	Chemical Characterization
Hydrogen Fluoride	7664-39-3	231-634-8	<10%	Yes	Substance
Hydrogen Chloride	7647-01-0	231-595-7	<10%	Yes	Substance
Phosphoric Acid	7664-38-2	231-633-2	<10%	Yes	Substance

4. FIRST AID MEASURES

EYE CONTACT:	Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

INHALATION:	Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

SKIN CONTACT:	Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

INGESTION:	As this product is a gas, refer to the inhalation section.

POTENTIAL ACUTE HEALTH EFFECTS:

EYE CONTACT:	Causes serious eye damage.
INHALATION:	Toxic of inhaled.
SKIN CONTACT:	Causes severe burns.
FROSTBITE:	Try to warm up the frozen tissues and seek medical attention.
INGESTION:	As this product is a gas, refer to the inhalation section

OVER-EXPOSURE SIGNS / SYMPTOMS:

EYE CONTACT:	Adverse symptoms may include pain, watering, redness.
INHALATION:	No specific data.
SKIN CONTACT:	Adverse symptoms may include pain or irritation, redness, possible blistering.
INGESTION:	Adverse symptoms may include stomach pains.

4. FIRST-AID MEASURES (CONTINUED)

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:

NOTES TO PHYSICIAN:	Treat symptomatically. Contact poision treatment specialist immediately if large quantities have been injested or inhaled.
SPECIFIC TREATMENTS:	No specific treatment.
PROTECTION OF FIRST-AIDERS:	No action shall be taken involving any personal risk without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask, respirator, or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

SEE TOXICOLOGICAL INFORMATION (SECTION 11)

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media:	Water spray Carbon Dioxide Chemical-type foam
Unsuitable Extinguishing Media:	High volume water jet
Specific Hazards During Firefighting:	Do not allow run-off from fire fighting to enter drains or water courses
Hazardous Combustion Products:	Fluorine compounds Carbon Monoxide Carbon Dioxide Smoke Phosphorus compounds
Specific Extinguishing Methods:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment
Further Information:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special Protective Equipment for Firefighters:	Wear self-contained breathing apparatus for firefighting if necessary

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Emergency Procedures:	Use personal protective equipment Ensure adequate ventilation
Environmental Precautions:	Prevent product from entering drains Prevent further leakage or spillage if safe to do so If the product contaminates rivers and lakes or drains, inform authorities
Methods and Materials for Containment and Clean-up:	Soak up with inert absorbent material such as sand, silica gel, acid binder, universal binder, sawdust, or kitty litter Keep in suitable, closed containers for disposal

7. HANDLING AND STORAGE

Technical Measures:	Due to the unique hazards associated with hydrogen fluoride (HF), it is highly recommended that emergency pre-planning and training of employees occur to mitigate and facilitate rapid response to an exposure. Facilities need to have access to emergency showers, proper personal protective equipment (PPE), a supply of calcium gluconate gel, and complete training of all individuals on proper PPE and procedures.
Advice on Safe Handling:	Do not breathe vapours/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.
Conditions for Safe Handling:	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards. Prevent unauthorized access.
Materials to Avoid:	Oxidizing agents

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component	CAS Number	OSHA PEL (8-hour TWA)	IDLH
Hydrogen Fluoride	7664-39-3	3 ppm	30 ppm
Hydrogen Chloride	7647-01-0	5 ppm	50 ppm
Phosphoric Acid	7664-38-2	0.25 ppm	250 ppm

Engineering Controls: Effective ventilation in all processing areas.

Personal Protective Equipment:

Respiratory Protection: Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are with in recommended exposure guidelines.

Hand Protection Material: Protective Gloves.

Remarks: The suitability of a specific workplace should be discussed with the producers of the protective gloves.

Eye Protection: Eye wash bottle with pure water. Tightly fitting safety goggles. Wear face shield and protective suit for abnormal processing problems.

Skin and Body Protection: Impervious clothing. Choose body protection according to the amount and conentration of the dangerous substance at the work place.

Hygiene Measures: Avoid contact with skin, eyes and clothing. When using do not eat, drink, or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear, colorless	**Vapor Density:** (air=1)	Not determined
Physical State:	Liquid	**Upper Expolosion Limit:**	Not determined
Odor:	Acidic	**Lower Explosion Limit:**	Not determined
PH:	<1	**Auto Ignition Temp:**	No data available
Freezing / Melting Point:	No data available	**Density:**	Not determined
Boiling Point:	No data available	**Specific Gravity:**	1.11 @ 25°C
Flash Point:	Does not flash	**Water Solubility:**	Complete (hot and cold)
Evaporation Rate: (n-Water=1)	1	**Thermal Decomposition:**	No data available
Vapor Pressure:	Not determined	**Viscosity:**	No data available

10. STABILITY AND REACTIVITY

Reactivity: Stable.

Chemical Stability: Stable under normal conditions.

Possibility of Hazardous Reactions: No decomposition if stored and applied as directed.

Conditions to Avoid: Heat, flames and sparks.

Incompatible Materials: Oxidizing agents, strong alkalis.

Hazardous Decomposition Products: May emit toxic fumes under fire conditions. Hydrogen Fluoride. Phosphorus compounds, Carbon Monoxide, Carbon Dioxide.

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

Aggravated Medical Condition: None known.

Symptoms of Overexposure: Effects are immediate and delayed. Symptoms include blistering, irritation, burns and pain. Effects are dependent on exposure (dose, concentration, contact time). Symptoms may include central nervous system depression resulting in headache, nausea and/or dizziness.

ACUTE EFFECTS

Eye Contact: May cause irreversible eye damage.

Skin Contact: Causes skin burns. Harmful if absorbed through the skin. Contact results in immediate skin absorbtion which may cause Hypocalcemia (Calcium loss). This effect may be delayed for several hours after exposure. Severe over-exposure by absorption can result in death.

Inhalation: Irritation to nose and throat, may cause bronchitis, pulmonary adema, or death.

Ingestion: Throat irritation, severe gastrointestinal burns that may cause death.

Target Organs: Eyes, skin, respiratory system, and bones.

Acute Toxicity: Oral LC_{50} (Rat) (1 Hour) = 1276 ppm
Dermal LC_{L0} (Rabbit) (7 Hour) = 313 ppm

12. ECOLOGICAL INFORMATION

Toxicity: Significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.

Persistence and Degradability: Not biodegradable.

Bioaccumulative Potential: No data available.

Mobility in Soil: No data available.

Other Adverse Effects: No known significant effects or critical hazards.

13. DISPOSAL CONSIDERATIONS

Disposal Methods:
Collect and reclaim or dispose in sealed containers at a properly licensed waste disposal site. Do not allow this material to drain into sewers / water supplies. Do not contaminate ponds, waterways, or ditches with chemical or used containers. Dispose of contents and container in accordance with local / regional / national or international regulations.

United States -

RCRA Toxic Hazardous Waste "U" List:

Ingredient	CAS No.	Status	Reference No.
Hydrogen Fluoride, Hydrofluoric Acid	7664-39-3	Listed	U134

14. TRANSPORT INFORMATION

Transportation Regulation: DOT 49 CFR (USA)

UN2922, Corrosive Liquid, Toxic, N.O.S., 8 (6.1), PG II (Contains Hydrofluoric Acid)

Transportation Regulation: IMDG (Vessel)

UN2922, Corrosive Liquid, Toxic, N.O.S., 8 (6.1), PG II (Contains Hydrofluoric Acid)

Transportation Regulation: IATA (Cargo Air)

UN2922, Corrosive Liquid, Toxic, N.O.S., 8 (6.1), PG II (Contains Hydrofluoric Acid)

Transportation Regulation: IATA (Passenger Air)

UN2922, Corrosive Liquid, Toxic, N.O.S., 8 (6.1), PG II (Contains Hydrofluoric Acid)

Transportation Regulation: TDG (Canada)

UN2922, Corrosive Liquid, Toxic, N.O.S., 8 (6.1), PG II (Contains Hydrofluoric Acid)

Reportable Quantitty: See CERCLA reportable quantity in next section.

The product as delivered to the customer conforms to packaging requirements for shipment by road under US Department of Transportation (DOT) regulations. Always transport in closed containers that are upright and securre. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

15. REGULATORY INFORMATION

TSCA List: No substances are subject to a Significant New Rule or to TSCA 12(b) export notification.

EPCRA - EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT

CERCLA Reportable Quantity:

Component	CAS No.	Component RQ (LBS)	Calculated Product RQ
Hydrogen Fluoride	7664-39-3	100	1000
Hydrogen Chloride	7647-01-0	5000	*
Phosphoric Acid	7664-38-2	5000	*

* Calculated RQ exceeds reasonably attainable upper limit

SARA 302:
The following component is subject to reporting levels per SARA Title III, Section 302:
Hydrogen Fluoride: 6.8041%

SARA 304:

Component	CAS No.	Component RQ (LBS)	Calculated Product RQ
Hydrogen Fluoride	7664-39-3	100	1000

SARA 311/312 Hazards:
Acute toxicity (any route of exposure). Skin corrosion or irritation. Serious eye damage or eye irritation

SARA 313:
The following component is subject to reporting levels per SARA Title III, Section 313:
Hydrogen Fluoride: 6.8041%

Clean Water Act (CWA) 311:
Hydrogen Fluoride, Hydrogen Chloride, Phosphoric Acid

Clean Air Act (CAA) 112(b) Hazardous Air Pollutants (HAPs):
Hydrogen Fluoride

16. OTHER INFORMATION

MANUFACTURERS DISCLAIMER:
Information given herein is offered in good faith as accurate, but without guarantee, and represents the best information currently available to us; much of which comes from the manufacturer or supplier of components of this product. Conditions of use and suitability of the product for particular uses are beyond our control; all risks of use of the product and its disposal are therefore assumed by the user. Nothing is intended as a recommendation for uses which infringe valid patents or as extending license under valid patents. Appropriate warnings and safe handling procedures should be provided to handlers and users. Vision Chemical Systems Inc., makes no warranty, expressed or implied regarding the accuracy of the data or for the use of the product. Furthermore, Vision Chemical Systems Inc. expressly disclaims liability for loss, damage, or expense arising from or in anyway connected to the handling, storage, use or disposal of this product. Health and safety precautions in this data sheet may not be adequate for all individuals and product uses. It is the users obligation to ensure that this SDS is the most current SDS available for the product; to evaluate the information contained in this sheet in connection to the uses to which the product is to be put in the work place, and to use the product safely in accordance with all applicable laws and regulations. If there are any questions regarding the information contained in this sheet or its applicability for a particular use, the user is instructed to telephone Vision Chemical Systems Inc. at 1-888-VCS-4-YOU.