a member of the Roche Group

Material Safety Data Sheet

Material Name: GMS Oxidizer **MSDS ID: 00231578**

* * * Section 1 - Chemical Product and Company Identification* * *

Manufacturer Information

VENTANA MEDICAL SYSTEMS INC.
1910 E. Innovation Park Drive
Tucson, AZ 85755
Phone: (520) 887-2155

EMERGENCY TELEPHONE NUMBER:
(800) 424-9300 (USA/Canada)
CHEMTREC: +1 (703) 527-3887 (International)

Material Name: GMS Oxidizer

Product Number(s)

860-007, 860-028, 1504015, 1562600, 05279232001, 05412749001, 06038069001, 06042473001

Product Use

clinical/research

* * * Section 2 - Hazards Identification* * *

NFPA Ratings: Health: 3 **Fire:** 0 **Reactivity:** 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Preparation

Carc.Cat.1,Muta.Cat.1,Repr.Cat.3,T,Xi,Xn,C,N; R:23-21/22-48-34-41-45-46-62-51/53

Risks

Harmful in contact with skin and if swallowed.
Toxic by inhalation.
Causes burns.
Risk of serious damage to eyes.
May cause cancer.
May cause heritable genetic damage.
Danger of serious damage to health by prolonged exposure.
Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Possible risk of impaired fertility.

EMERGENCY OVERVIEW

Color: orange
Physical Form: liquid
Odor: odorless
Major Health Hazards: harmful if swallowed, respiratory tract burns, skin burns, eye burns, mucous membrane burns, allergic reactions, kidney damage, cancer hazard (in humans)
Physical Hazards: May ignite combustibles.

POTENTIAL HEALTH EFFECTS

Inhalation

Short Term: burns, allergic reactions
Long Term: burns, allergic reactions, kidney damage, cancer

Skin

Short Term: burns, allergic reactions, kidney damage
Long Term: burns, allergic reactions, kidney damage

Eye

Short Term: burns
Long Term: burns

Ingestion

Short Term: burns, kidney damage
Long Term: burns, kidney damage

OSHA Regulatory Status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

* * * Section 3 - Composition/Information on Ingredients* * *

CAS #	Component / EU Number	Percent	Symbol(s)	Risk Phrase(s)
Not Available	NON-HAZARDOUS -	60-100	---	---
1333-82-0	CHROMIC ANHYDRIDE 215-607-8	5-10	O T+ N	R:45-46-9-24/25-26-35-42/43-48/23-62-50/53

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Chromium (VI) compounds- water soluble, Chromium (VI) compounds, Chromium compounds, Chromates, Chromium, inorganic compounds.

* * * Section 4 - First Aid Measures* * *

Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Skin

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes.

Eyes

Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Ingestion

If swallowed, drink plenty of water, do NOT induce vomiting. Get immediate medical attention.

Note to Physicians

For inhalation, consider oxygen.
Avoid gastric lavage or emesis.

* * * Section 5 - Fire-Fighting Measures* * *

See Section 9 for Flammability Properties

Flammable Properties

Negligible fire hazard. Oxidizer. May ignite or explode on contact with combustible materials.

Extinguishing Media

regular dry chemical, water spray, carbon dioxide

Fire Fighting Measures

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Flood with water. Apply water from a protected location or from a safe distance.

Sensitivity to Mechanical Impact

Not sensitive

Sensitivity to Static Discharge

Not sensitive

* * * Section 6 - Accidental Release Measures* * *

Water Release

Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

Occupational Spill/Release

Avoid contact with combustible materials. Do not touch spilled material. **Small spills:** Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Keep unnecessary people away, isolate hazard area and deny entry.

* * * Section 7 - Handling and Storage* * *

Handling Procedures

Wash thoroughly after handling.

Storage Procedures

Store and handle in accordance with all current regulations and standards. NFPA 430 Code for the Storage of Liquid and Solid Oxidizing Materials. Store between 2 C and 30 C. See original container for storage recommendations. Keep separated from incompatible substances.

* * * Section 8 - Exposure Controls/Personal Protection* * *

Exposure Limits

CHROMIC ANHYDRIDE (1333-82-0)

NIOSH:	0.001 mg/m3 TWA (as Cr) 15 mg/m3 IDLH (as Cr(VI))
OSHA:	5 µg/m3 TWA (Cancer hazard, See 29 CFR 1910.1026, as Cr); 2.5 µg/m3 Action Level (as Cr, related to Chromium (VI) compounds) 0.1 mg/m3 Ceiling (related to Chromates) 5 µg/m3 TWA (related to Chromium (VI) compounds) 0.1 mg/m3 Ceiling (applies to any operations or sectors for which the Hexavalent Chromium standard [29 CFR 1910.1026] is stayed or is otherwise not in effect, as CrO3, related to Chromates)
Austria:	skin notation Skin sensitizer Respiratory sensitizer
Belgium:	0.05 mg/m3 TWA (as Cr, related to Chromium (VI) compounds- water soluble)
Denmark:	0.005 mg/m3 TWA (except Strontium chromate, as Cr, related to Chromates)
Finland:	0.05 mg/m3 TWA (as CrO4)
France:	0.1 mg/m3 VLCT (as Cr) 0.05 mg/m3 VME (as Cr)
Germany:	Group 2
Germany (DFG):	skin notation (except Lead chromate and Barium chromate, related to Chromium (VI) compounds) skin sensitizer (except Lead chromate and Barium chromate, related to Chromium (VI) compounds)
Greece:	0.5 mg/m3 TWA (as KCrO3, related to Chromium (VI) compounds- water soluble)
Ireland:	0.05 mg/m3 TWA (water soluble, as Cr); 0.01 mg/m3 TWA (insoluble, as Cr, related to Chromium (VI) compounds)
Japan	0.05 mg/m3 OEL (as Cr); 0.01 mg/m3 OEL (certain compounds, as Cr, related to Chromium (VI) compounds) Group 2 airway sensitizer (Evaluation does not necessarily apply to all individuals within the group); Group 1 skin sensitizer (Evaluation does not necessarily apply to all individuals within the group, related to Chromium compounds)
Netherlands:	0.05 mg/m3 STEL (as Cr) 0.025 mg/m3 TWA (as Cr) skin notation (related to Chromium (VI) compounds- water soluble)
Portugal:	0.5 mg/m3 TWA (as Cr, related to Chromium, inorganic compounds)
Spain:	0.05 mg/m3 VLA-ED sensitizer
Sweden:	0.005 mg/m3 LLV (total dust) 0.015 mg/m3 STV (total dust) Sensitizer
United Kingdom:	0.15 mg/m3 STEL (calculated, as Cr, related to Chromium (VI) compounds) 0.05 mg/m3 TWA (as Cr, related to Chromium (VI) compounds) Capable of causing occupational asthma (related to Chromium (VI) compounds) Capable of causing cancer and/or heritable genetic damage (related to Chromium (VI) compounds)

Ventilation

Provide adequate ventilation. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Eyes/Face

Safety glasses or goggles are recommended when there is a potential for eye contact. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Protective Clothing

Lab coat or apron.

Glove Recommendations

Wear appropriate chemical resistant gloves.

Protective Materials

latex, vinyl, nitrile

Respiratory Protection

No respirator is required under normal conditions of use.

* * * Section 9 - Physical and Chemical Properties* * *

Physical State:	Liquid	**Appearance:**	Clear, orange liquid
Color:	orange	**Physical Form:**	liquid
Odor:	odorless	**Odor Threshold:**	Not available
pH:	0.5	**Decomposition:**	Not available
Flash Point:	not flammable	**Evaporation Rate:**	Not available
LEL:	Not available	**UEL:**	Not available
Vapor Pressure:	Not available	**Vapor Density (air = 1):**	Not available
Density:	Not available	**Water Solubility:**	miscible
Log KOW:	Not available	**Coeff. Water/Oil Dist.:**	Not available
Auto Ignition:	Not available	**Viscosity:**	Not available
Volatility:	Not available		

* * * Section 10 - Stability and Reactivity* * *

Chemical Stability

Stable at normal temperatures and pressure.

Conditions to Avoid

Avoid contact with combustible materials. May ignite or explode on contact with combustible materials. Keep out of water supplies and sewers.

Materials to Avoid

ammonia, arsenic, dimethylformamide, finely powdered metals, hydrogen sulfide, organic solvents and compounds, phosphorus, potassium, selenium, sodium

Decomposition Products

miscellaneous decomposition products

Possibility of Hazardous Reactions

Will not polymerize.

* * * Section 11 - Toxicological Information* * *

Acute and Chronic Toxicity

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

CHROMIC ANHYDRIDE (1333-82-0)

Inhalation LC50 Rat 0.217 mg/L 4 h; Oral LD50 Rat 50 mg/kg; Dermal LD50 Rat 55 mg/kg; Dermal LD50 Rabbit 20 mg/kg

RTECS Acute Toxicity (selected)

The components of this material have been reviewed, and RTECS publishes the following endpoints:

CHROMIC ANHYDRIDE (1333-82-0)

Oral: 80 mg/kg Oral Rat LD50

Acute Toxicity Level

CHROMIC ANHYDRIDE (1333-82-0)

Toxic: ingestion

Irritation/Corrosivity

RTECS Irritation

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Local Effects

CHROMIC ANHYDRIDE (1333-82-0)

Corrosive: inhalation, skin, eye, ingestion

Target Organs

CHROMIC ANHYDRIDE (1333-82-0)

immune system (sensitizer), kidneys

Carcinogenicity

Component Carcinogenicity

CHROMIC ANHYDRIDE (1333-82-0)

OSHA:	Present
NIOSH:	potential occupational carcinogen
NTP:	Known Human Carcinogen
IARC:	Monograph 49 [1990]; Supplement 7 [1987]; Monograph 23 [1980]; Monograph 2 [1973] (Group 1 (carcinogenic to humans))
Austria:	Group A2 Carcinogen
Denmark:	Present
France:	Carcinogen category 1
Germany:	Category 2 (considered to be carcinogenic for man); Category 1 (causes cancer in man, inhalable fraction, related to Chromium (VI) compounds)
Italy:	Category 1 Carcinogen
Netherlands:	Present
Portugal:	A4 - Not Classifiable as a Human Carcinogen (related to Chromium, inorganic compounds)
Spain:	Known human carcinogen
	Carcinogen

Mutagenic

No information available for the mixture.

RTECS Mutagenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Reproductive Effects

No information available for the mixture.

RTECS Reproductive Effects

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Tumorigenic

No information available for the mixture.

RTECS Tumorigenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Medical Conditions Aggravated by Exposure

blood system disorders, heart or cardiovascular disorders, liver disorders, respiratory disorders, skin disorders and allergies

Additional Data

May be excreted in breast milk.

* * * Section 12 - Ecological Information* * *

Component Analysis - Aquatic Toxicity

CHROMIC ANHYDRIDE (1333-82-0)

Fish: 96 Hr LC50 Colisa fasciatus: 40 mg/L [static]

Mobility

No data available for the mixture.

Persistence & Degradation

No data available for the mixture.

Bioaccumulative Potential

No data available for the mixture.

* * * Section 13 - Disposal Considerations* * *

Disposal Methods

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001. D002. D007. Dispose of in accordance with U.S. EPA 40 CFR 262 for concentrations at or above the Regulatory level. Regulatory level- 5.0 mg/L.

Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components.

* * * Section 14 - Transport Information* * *

US DOT Information

Shipping Name: Chromic acid solution
UN/NA #: UN1755 **Hazard Class:** 8 **Packing Group:** II
Required Label(s): 8

TDG Information

Shipping Name: Chromic acid solution
UN #: UN1755 **Hazard Class:** 8 **Packing Group:** II
Required Label(s): 8

ADR Information

Shipping Name: Chromic acid solution
UN #: UN1755 **Hazard Class:** 8 **Packing Group:** II
Required Label(s): 8

RID Information

Shipping Name: Chromic acid, solution
UN #: UN1755 **Hazard Class:** 8 **Packing Group:** II
Required Label(s): 8

IATA Information

Shipping Name: Chromic acid solution
UN #: UN1755 **Hazard Class:** 8 **Packing Group:** II
Required Label(s): 8

ICAO Information

Shipping Name: Chromic acid solution
UN #: UN1755 **Hazard Class:** 8 **Packing Group:** II
Required Label(s): 8

IMDG Information

Shipping Name: Chromic acid, solution
UN #: UN1755 **Hazard Class:** 8 **Packing Group:** II
Required Label(s): 8

* * * Section 15 - Regulatory Information* * *

U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

CHROMIC ANHYDRIDE (1333-82-0)

SARA 313: 0.1 % de minimis concentration (except for chromite ore mined in the Transvaal Region of South Africa and the unreacted ore component of the chromite ore processing residue (COPR), Chemical Category N090, related to Chromium (VI) compounds)

TSCA 12b: Section 6, 0.1 % de minimus concentration (see 40 CFR 749.68)

SARA 311/312

Acute Health: Yes **Chronic Health:** Yes **Fire:** Yes **Pressure:** No **Reactive:** No

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component / EC Number	CAS	CA	MA	MN	NJ	PA	RI
CHROMIC ANHYDRIDE ([1]related to: Chromium compounds) ([2]related to: Chromium (VI) compounds-water soluble) ([3]related to: Chromium (VI) compounds)	1333-82-0	Yes[1]	Yes	Yes[2]	Yes	Yes	Yes[3]

California Proposition 65

The following statement(s) are provided under the 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.

WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

Canadian Regulations

Canada WHMIS

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

CHROMIC ANHYDRIDE (1333-82-0)

0.1 %

WHMIS Classification

C, D2A, D2B, E.

European Regulations

This preparation has been classified for the European Union according to Annex VI Directives 67/548/EEC and 99/45/EC.

Germany Water Classification

CHROMIC ANHYDRIDE (1333-82-0)

ID Number 328, hazard class 3 - severe hazard to waters

Candidate List of Substances Subject to Authorization

The following component(s) are included on the Candidate List of Substances Subject to Authorization (EU-REACH 1907/2006) - Article 59(1).

CHROMIC ANHYDRIDE (1333-82-0)

Reason for inclusion: Carcinogenic, Article 57a; Reason for inclusion: Mutagenic, Article 57b

EU Marking and Labelling

Symbols

T Toxic
Xn Harmful
C Corrosive
Xi Irritant
N Dangerous for the environment

Risk Phrases

R23 Toxic by inhalation.
R21/22 Harmful in contact with skin and if swallowed.

R48 Danger of serious damage to health by prolonged exposure.
R34 Causes burns.
R41 Risk of serious damage to eyes.
R45 May cause cancer.
R46 May cause heritable genetic damage.
R62 Possible risk of impaired fertility.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases

S17 Keep away from combustible material.
S24/25 Avoid contact with skin and eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S27 Take off immediately all contaminated clothing.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S38 In case of insufficient ventilation, wear suitable respiratory equipment.
S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S53 Avoid exposure - obtain special instructions before use.
S60 This material and its container must be disposed of as hazardous waste.
S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

Japanese Regulations

Japan Designated Chemical Substances (PRTR Law)

The following components are subject to reporting requirements as specified by the "Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management" and are included in the "Pollutant Release and Transfer Register (PRTR)" of designated chemicals.

CHROMIC ANHYDRIDE (1333-82-0)

88 0.1 % [as Cr, 0.52] (Designated class 1 substance)

Japan Poisonous and Deleterious Substances

The following components are specified as poisonous and deleterious substances, and are regulated by Japan under the Poisonous and Deleterious Substances Control Law.

CHROMIC ANHYDRIDE (1333-82-0)

Deleterious; Deleterious

Industrial Safety and Health Law - Flammable Materials

No components of this material are specifically identified in Table 6-2 of the Enforcement Order of the Industrial Safety and Health Law which, if used in the workplace, require designation of an Operations Chief during confined space work and periodic machine inspections.

Industrial Safety and Health Law - Label Disclosure

This list contains those harmful substances present in this product whose names are to be indicated on a container label as specified by Article 18 of the Enforcement Order of the Industrial Safety and Health Law.

CHROMIC ANHYDRIDE (1333-82-0)

0.1 % weight

Industrial Safety and Health Law - Organic Solvents

No components of this material are specifically identified in Table 6-2 of the Enforcement Order of the Industrial Safety and Health Law which, if used in the workplace, require designation of an Operations Chief during confined space work and periodic machine inspections.

* * * Section 16 - Other Information* * *

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

Full text of R phrases in Section 3

R9 Explosive when mixed with combustible material.
R24/25 Toxic in contact with skin and if swallowed.
R26 Very toxic by inhalation.
R35 Causes severe burns.
R42/43 May cause sensitization by inhalation and skin contact.
R45 May cause cancer.
R46 May cause heritable genetic damage.
R48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R62 Possible risk of impaired fertility.

Other Information

Limitations: The information and recommendations set forth in this MSDS are believed to be correct as of this date. Ventana Medical Systems, Inc. makes no warranty with respect to the content of this MSDS and disclaims all liability from reliance thereon.

MSDS Update: 1/19/2011

End of Sheet 00231578