SAFETY DATA SHEET

Section 1. Identification

Product identifier : Anthium™ C-20

Material Number : 57951275

EPA Registration Number: : 9150-11

Identified uses : Biocide

Supplier/Manufacturer : International Dioxide Inc.
40 Whitecap Drive
North Kingstown, RI 02852

For Information: (800) 477-6071
International: +1 (401) 295-8800

In case of emergency : CHEMTREC (800) 424 9300
International (703) 527 3887

Section 2. Hazards identification

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

Physical state : Liquid.

Color : clear

Classification of the substance or mixture : SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (brain, nervous system and spleen) - Category 2

Hazard pictograms :

Signal word : Warning

Hazard statements : Causes serious eye irritation. Causes skin irritation. May cause damage to organs through prolonged or repeated exposure. (brain, nervous system, spleen)

Hazard Not Otherwise Classified (HNOC) : Causes severe digestive tract burns. Causes respiratory tract burns.

Precautionary statements

Prevention : Wear protective gloves and eye/face protection. Do not breathe vapor. Wash hands thoroughly after handling.

Response : Get medical attention if you feel unwell. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical attention. 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 attention.

Storage : Not applicable.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements : Do not taste or swallow. Wash thoroughly after handling. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials and food and drink. Corrosive to digestive tract [severe]

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
Sodium chlorite	≤1.5	7758-19-2
Alcohols, C12-15, ethoxylated	≤1.4	68131-39-5
Isopropanol	≤5	67-63-0

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of first aid measures

Eye contact : Check for and remove any contact lenses. Get medical attention. In case of contact, flush eyes with plenty of water for at least 20 minutes. Use fingers to ensure that eyelids are separated and that the eye is being irrigated.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention following exposure or if feeling unwell. 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. If not breathing, if breathing is irregulor or respiratory arrest occurs, provide artifical respiration, or oxygen by a trained professional, using a pocket type respirator.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse. In case of contact, flush skin with plenty of water for at least 20 minutes.

Ingestion : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention following exposure or if feeling unwell. Never give anything by mouth to an unconscious person. 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.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system.

Skin contact : Causes skin irritation.

Ingestion : Severely corrosive to the digestive tract. Causes severe burns. Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact : Causes irritation with symptoms of reddening, tearing, stinging, and swelling.

Inhalation : Corrosive with symptoms of coughing, burning, ulceration, and pain.
May cause pulmonary edema with symptoms of breathing difficulty and tightness of chest.

Skin contact : Causes irritation with symptoms of reddening, itching, and swelling.

Ingestion : Corrosive with symptoms of coughing, burning, ulceration, and pain.
May cause irritation; Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

Potential chronic health effects

May cause damage to organs through prolonged or repeated exposure.

Section 4. First aid measures

Notes to physician : Treat symptomatically. No specific treatment.

Protection of first-aiders : No special measures required.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire. In case of fire, use water spray (fog), foam or dry chemical.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
halogenated compounds
metal oxide/oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal. Prevent entry into sewers, water courses, basements or confined areas.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. Remove contaminated clothing and protective equipment before entering eating areas. Workers should wash hands and face before eating, drinking and smoking. Put on appropriate personal protection equipment. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed.

Section 7. Handling and storage

Conditions for safe storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Empty containers retain product residue and can be hazardous. Do not reuse container.

Section 8. Exposure controls/personal protection

Occupational exposure limits

Ingredient name	Exposure limits
Sodium chlorite Alcohols, C12-15, ethoxylated Isopropanol	None None **ACGIH TLV (United States, 3/2016).** TWA: 200 ppm 8 hours. STEL: 400 ppm 15 minutes. **OSHA PEL (United States, 6/2016).** TWA: 400 ppm 8 hours. TWA: 980 mg/m³ 8 hours.

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal protection

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory protection : Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. A NIOSH approved air purifying respirator with organic vapor cartridges and particulate prefilter can be used to minimize exposure.

Skin protection : Permeation resistant clothing and foot protection. Permeation resistant gloves.

Eye/face protection : chemical splash goggles.

Medical Surveillance : Not available.

Section 9. Physical and chemical properties

Physical state : Liquid.

Color : clear

Odor : Alcohol-like.

Odor threshold : Not available.

pH : 9

Boiling point : 93 °C (1013 hPa)

Melting point : Not available.

Flash point : Not available.

Evaporation rate : Not available.

Explosion limits : Not available.

Vapor pressure : Not available.

Density : 1 g/cm³

Section 9. Physical and chemical properties

Specific gravity (Relative density) : Not available.

Solubility in water : Miscible in water.

Partition coefficient: n-octanol/water : Not available.

Vapor density : Not available.

Viscosity : Not available.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on the likely routes of exposure : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system.

Skin contact : Causes skin irritation.

Ingestion : Severely corrosive to the digestive tract. Causes severe burns. Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Causes irritation with symptoms of reddening, tearing, stinging, and swelling.

Inhalation : Corrosive with symptoms of coughing, burning, ulceration, and pain.
May cause pulmonary edema with symptoms of breathing difficulty and tightness of chest.

Skin contact : Causes irritation with symptoms of reddening, itching, and swelling.

Ingestion : Corrosive with symptoms of coughing, burning, ulceration, and pain.
May cause irritation; Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

Potential chronic health effects

Short term exposure

Potential immediate effects : Not available.

Long term exposure

Potential delayed effects : Not available.

General : May cause damage to organs through prolonged or repeated exposure.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Section 11. Toxicological information

Fertility effects : No known significant effects or critical hazards.

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure	Test
Anthium™ C-20	LD50 Oral	Rat	>5000 mg/kg	-	-
Sodium chlorite	LD50 Dermal	Rabbit - Male, Female	134 mg/kg	-	OPP 81-2 Acute Dermal Toxicity
Alcohols, C12-15, ethoxylated	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-	402 Acute Dermal Toxicity
Isopropanol	LD50 Dermal	rabbit	13400 mg/kg	-	-
	LD50 Dermal	Rat	12800 mg/kg	-	-
Sodium chlorite	LC50 Inhalation Dusts and mists	Rat	230 mg/m³	4 hours	-
Alcohols, C12-15, ethoxylated	LC50 Inhalation Vapor	Rat - Male, Female	>1.6 mg/l	4 hours *Test results on an analogous product	OECD 403 Acute Inhalation Toxicity
Isopropanol	LC50 Inhalation Vapor	Rat	30 mg/l	4 hours	-

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Sodium chlorite	skin	Guinea pig	Not sensitizing
Isopropanol	skin	Guinea pig	Not sensitizing

Skin : Not sensitizing

Chronic toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Isopropanol	Sub-chronic NOAEL Inhalation Gas.	Rat	1500 ppm	90 days

Mutagenicity

Product/ingredient name	Test	Experiment	Result
Isopropanol	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Negative
	Micronucleus assay	Experiment: In vivo Subject: Mammalian-Animal	Negative

Conclusion/Summary : Sodium chlorite:Not mutagenic in a standard battery of genetic toxicological tests. Did not show carcinogenic or mutagenic effects in animal experiments.

Carcinogenicity

Conclusion/Summary : Sodium chlorite:No carcinogenic effect.

Product/ingredient name	CAS #	IARC	NTP	OSHA
Sodium chlorite	7758-19-2	Not classified.	Not classified.	Not classified.
Alcohols, C12-15, ethoxylated	68131-39-5	Not classified.	Not classified.	Not classified.
Isopropanol	67-63-0	Not classified.	Not classified.	Not classified.

Reproductive toxicity

Conclusion/Summary : Sodium chlorite:Not considered to be toxic to the reproductive system.

Teratogenicity

Section 11. Toxicological information

Conclusion/Summary : Sodium chlorite:Teratogenic effects seen only with maternal toxicity

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Isopropanol	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Sodium chlorite	Category 2	Not determined	spleen
Isopropanol	Category 2	Not determined	brain and nervous system

Acute toxicity estimates

Route	ATE value (Acute Toxicity Estimates)
Dermal	11120.6 mg/kg
Inhalation (vapors)	41.67 mg/l
Inhalation (dusts and mists)	19.09 mg/l

Section 12. Ecological information

Toxicity

Product/ingredient name	Test	Result	Species	Exposure
Sodium chlorite	-	Acute EC50 1 mg/l Fresh water	Algae - Scenedesmus capricornutum	96 hours
	-	Acute EC50 0.65 mg/l Marine water	Crustaceans - Mysidopsis bahia	96 hours
	OECD 202 *Daphnia* sp. Acute Immobilization Test	Acute EC50 <1 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	-	Acute LC50 106 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	-	Chronic NOEC 0.62 mg/l Fresh water	Algae - Scenedesmus capricornutum	96 hours
Alcohols, C12-15, ethoxylated	-	Acute EC50 0.75 mg/l (growth rate)	Algae - Pseudokirchneriella subcapitata	72 hours
	-	Acute EC50 0.14 mg/l Mortality	Daphnia - Daphnia magna	48 hours
	-	Acute LC50 1.3 to 1.7 mg/l	Fish - Oncorhynchus mykiss	96 hours
	QSAR WoE	Chronic EC20 0.514 mg/l	Daphnia - Daphnia magna	21 days
	QSAR WoE	Chronic EC20 0.9 mg/l Mortality	Fish	30 days
Isopropanol	-	Acute EC50 >100 mg/l	Daphnia - Daphnia magna	48 hours
	-	Acute LC50 >100 mg/l	Daphnia - Leuciscus idus	96 hours

Conclusion/Summary : Not available.

Persistence and degradability

Section 12. Ecological information

Conclusion/Summary : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Alcohols, C12-15, ethoxylated	-	-	Readily
Isopropanol	-	-	Readily

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Sodium chlorite	<-2.7	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Waste disposal should be in accordance with existing federal state, provincial and or local environmental controls laws.

RCRA classification : : When discarded in its purchased form, this product is a listed RCRA hazardous waste and should be managed as a hazardous waste. (40 CFR 261.20-24) Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product, should be classified as a hazardous waste. (40 CFR 261.20-24)

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	-	-	-	-		Not regulated.
IMDG Class	-	-	-	-		Not regulated.
IATA-DGR Class	-	-	-	-		Not regulated.

PG* : Packing group

RQ : 0 lbs

Section 15. Regulatory information

SARA 311/312 : Immediate (acute) health hazard
Delayed (chronic) health hazard

SARA Title III Section 302 Extremely Hazardous Substances : None

SARA Title III Section 313 Toxic Chemicals : None

US EPA CERCLA Hazardous Subtances (40 CFR 302.4) : None

State regulations

Section 15. Regulatory information

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections on the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropraite agency in your state.

Ingredient name	CAS number	State Code	Concentration (%)
Sodium chlorite	7758-19-2	MA - S, NJ - HS, PA - RTK HS	≤1.5
Isopropanol	67-63-0	MA - S, NJ - HS, PA - RTK HS	≤5
Water	7732-18-5		≥90
Alcohols, C12-15, ethoxylated	68131-39-5		≤1.4

Massachusetts Substances: MA - S
Massachusetts Extraordinary Hazardous Substances: MA - Extra HS
New Jersey Hazardous Substances: NJ - HS
Pennsylvania RTK Hazardous Substances: PA - RTK HS
Pennsylvania Special Hazardous Substances: PA - Special HS

California Prop. 65

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

U.S. Toxic Substances Control Act : This product is excluded from TSCA Regulation under FIFRA Section 3 (2)(B)(ii) when used as a pesticide.

FIFRA

EPA Registration Number : 9150-11

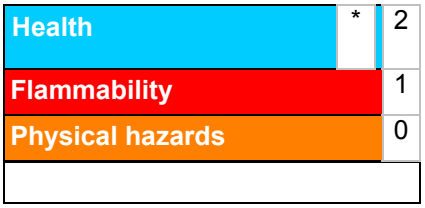
This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

Signal word : WARNING

Hazard statements : Causes substantial, but temporary eye damage and skin irritation.

Section 16. Other information

Hazardous Material Information System :



0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme
***=Chronic**

The customer is responsible for determining the PPE code for this material. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

National Fire Protection Association (U.S.A.) :

0= Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

Our method of hazard communication is comprised of Product Labels and Safety Data Sheets. HMIS and NFPA ratings are provided as a customer service.

Section 16. Other information

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Date of issue	:	09-18-2017
Date of previous issue	:	06-15-2017
Version	:	2
		Product Safety and Regulatory Affairs

Indicates information that has changed from previously issued version.

Notice to reader

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of International Dioxide Inc.. The information in this SDS relates only to the specific material designated herein. International Dioxide Inc. assumes no legal responsibility for use of or reliance upon the information in this SDS.