MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 08/23/2013 Version 1.2

SECTION 1.Identification

Product identifier

Product number	104912
Product name	Potassium bromate for analysis EMSURE® ACS,ISO,Reag. Ph Eur
Synonyms	Bromic Acid, Potassium Salt

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

Identified uses	Reagent for analysis

Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821, United States of America | SDS Phone Support: +1-978-715-1335 | General Inquiries: +1-978-715-4321 | Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Carcinogenicity, Category 1B, H350
Oxidizing solid, Category 2, H272
Acute toxicity, Category 3, Oral, H301

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms

Signal Word
Danger

Hazard Statements
H272 May intensify fire; oxidizer.
H301 Toxic if swallowed.
H350 May cause cancer.

Precautionary Statements
P201 Obtain special instructions before use.
P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

Restricted to professional users.

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

Other hazards
None known.

SECTION 3. Composition/information on ingredients

Formula	$KBrO_3$	$BrKO_3$ (Hill)
CAS-No.	7758-01-2	
Synonyms	Bromic Acid, Potassium Salt	
Molar mass	167 g/mol	

Hazardous ingredients
Chemical Name (Concentration)
CAS-No.
Potassium bromate (<= 100 %)
7758-01-2

SECTION 4. First aid measures

Description of first-aid measures

Inhalation
After inhalation: fresh air. Call in physician.

Skin contact
After skin contact: wash off with plenty of water. Remove contaminated clothing. Get medical attention.

Eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist.

Ingestion
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed
Cough, Headache, Nausea, Vomiting, irritant effects, gastric pain, Diarrhea, Shortness of breath

Indication of any immediate medical attention and special treatment needed
No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Oxidizing, Has a fire-promoting effect due to release of oxygen.
Ambient fire may liberate hazardous vapors.
Fire may cause evolution of:
hydrogen bromide

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel:

Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation.

Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.
Observe possible material restrictions (see sections 7 and 10).
Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Conditions for safe storage, including any incompatibilities

Tightly closed. Dry. Separately or together with other oxidizing substances only and away from sources of ignition and heat. Because of their oxidation potential these products can raise the burning rate of combustible substances substantially or ignite combustible substances on contact with them. Keep locked up or in an area accessible only to qualified or authorized persons.

Store at +5°C to +30°C (+41°F to +86°F).

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Contains no substances with occupational exposure limit values.

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Safety glasses

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Respiratory protection

required when dusts are generated.
Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. 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.

SECTION 9. Physical and chemical properties

Physical state	powder, finecrystalline
Color	off-white
Odor	odorless
Odor Threshold	No information available.
pH	5 - 9 at 50 g/l 68 °F (20 °C)
Melting point/range	409 - 413 °C Method: OECD Test Guideline 102
Boiling point/boiling range	> 797 °F (> 425 °C) Method: OECD Test Guideline 103 (decomposition)

Flash point	not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable. NF T 20-042
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapor pressure	not applicable
Relative vapor density	not applicable
Relative density	3.13 g/cm³ at 68 °F (20 °C) Method: OECD Test Guideline 109
Water solubility	66 g/l at 68 °F (20 °C) Method: OECD Test Guideline 105
Partition coefficient: n-octanol/water	not applicable
Autoignition temperature	No information available.
Decomposition temperature	> 797 °F (> 425 °C)
Viscosity, dynamic	No information available.
Explosive properties	No information available.
Ignition temperature	not applicable
Bulk density	ca.1,400 kg/m³
Particle size	Mean particle size 457 µm Method: OECD Test Guideline 110

SECTION 10. Stability and reactivity

Reactivity

strong oxidizing agent

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions

Risk of explosion with:

Risk of ignition or formation of inflammable gases or vapors with:

semimetals, nonmetals, nonmetallic halides, Reducing agents, combustible substances, ammonium compounds, sulfuric acid, Sulfides, Powdered metals

Conditions to avoid

Strong heating.

Incompatible materials

no information available

Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Eye contact, Skin contact, Ingestion

Acute oral toxicity

LD50 rat: 157 mg/kg (RTECS)

Symptoms: Nausea, Vomiting, Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

absorption

Acute inhalation toxicity

Symptoms: Irritations of mucous membranes, Cough, Headache, Shortness of breath

Skin irritation

Result: No irritation

Human Skin Model Test

Result: non-corrosive

OECD Test Guideline 431

Eye irritation

Result: slight irritation

OECD Test Guideline 437

Sensitization

In animal experiments: mouse

Result: negative

Method: OECD Test Guideline 429

No skin-sensitizing effect.

Genotoxicity in vivo

Result: Positive results were obtained in some in vivo tests.

(Lit.)

Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: positive
Method: OECD Test Guideline 471

CMR effects
Carcinogenicity:
May cause cancer.

Specific target organ systemic toxicity - single exposure
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information
After absorption:
Systemic effects:
Diarrhea, gastric pain, Methemoglobinemia with headache, cardiac arrhythmia, drop in blood pressure, dyspnoea, and spasms, key symptom: cyanosis (blue coloration of the blood).
After a latency period:
Damage to:
Kidney, Liver
Further data:
This substance should be handled with particular care.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish
LC50 fish: 430 mg/l; 96 h (Lit.)

Toxicity to daphnia and other aquatic invertebrates
Immobilization EC50 Daphnia magna (Water flea): > 100 mg/l; 48 h
OECD Test Guideline 202

Toxicity to algae
Growth inhibition EC50 Desmodesmus subspicatus (green algae): > 100 mg/l; 72 h
OECD Test Guideline 201

Growth inhibition NOEC Desmodesmus subspicatus (green algae): 31.6 mg/l; 72 h
OECD Test Guideline 201

Persistence and degradability
Biodegradability

The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulative potential
Partition coefficient: n-octanol/water
not applicable

Mobility in soil
No information available.

Additional ecological information
Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 1484
Proper shipping name	POTASSIUM BROMATE
Class	5.1
Packing group	II
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 1484
Proper shipping name	POTASSIUM BROMATE
Class	5.1
Packing group	II
Environmentally hazardous	--
Special precautions for user	no

Sea transport (IMDG)

UN number	UN 1484
Proper shipping name	POTASSIUM BROMATE
Class	5.1
Packing group	II
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-H S-Q

SECTION 15. Regulatory information

United States of America

OSHA Hazards

Combustible dust
Oxidizer
Toxic by ingestion
Carcinogen

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Acute Health Hazard
Chronic Health Hazard
Fire Hazard

SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:
Ingredients
Potassium bromate 7758-01-2

SARA 302

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

DEA List I

Not listed

DEA List II

Not listed

US State Regulations

Massachusetts Right To Know

Ingredients
Potassium bromate

Pennsylvania Right To Know
Ingredients
Potassium bromate

New Jersey Right To Know
Ingredients
Potassium bromate

California Prop 65 Components
WARNING! This product contains a chemical known in the State of California to cause cancer.
Ingredients
Potassium bromate

Notification status

TSCA:	All components of the product are listed in the TSCA-inventory.
DSL:	All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice
Provide adequate information, instruction and training for operators.

Full text of H-Statements referred to under sections 2 and 3.

H272	May intensify fire; oxidizer.
H301	Toxic if swallowed.
H350	May cause cancer.

Key or legend to abbreviations and acronyms used in the safety data sheet
Used abbreviations and acronyms can be looked up at www.wikipedia.org.

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