

Section 1: Product & Company Information

Product Identifier: Potassium Permanganate, NSF

Other Means of Identification

Product Number: 145509

Recommended Use and Restrictions on Use

Recommended Use: Water treatment, Municipal & industrial wastewater treatment, Oxidizer- for industrial use only.

Restrictions on Use: Not known.

Manufacturer / Importer / Supplier / Distributor Information

Company Name: CORECHEM Inc.

Address: 4320 Greenway Drive
Knoxville, TN 37918 USA

Information Telephone Number: 1-865-524-4239

Fax Number: 1-865-524-3375

Website: www.corecheminc.com

Contact Person: Regulatory Manager

E-mail: regulatory@corecheminc.com

Emergency Phone Number: Chemtrec® 1-800-424-9300 / Outside USA 1-703-527-3887 (monitored 24 hours/day)

Section 2: Hazards Identification

GHS Hazard Classification(s)

In accordance with OSHA Hazard Communication Standard 29 CFR 1910.1200 (HazCom 2012).

Physical Hazard(s)

Oxidizing, Solids - 2

Health Hazard(s)

Acute Toxicity, Oral - 4

Corrosion/Irritation, Skin - 1B

Specific Target Organ Toxicity (STOT), Single exposure - 1

Specific Target Organ Toxicity (STOT), Repeated exposure - 1

Environmental Hazard(s)

Aquatic, Acute - 1

Aquatic, Chronic - 1

Label Elements

Signal Word

DANGER

Hazard Symbol(s)



Hazard Statement(s)

H272: May intensify fire; oxidizer.

H302: Harmful if swallowed.

H314: Causes severe skin burns and eye damage.

H370: Causes damage to organs.

H372: Causes damage to organs.

H400: Very toxic to aquatic life.

H410: Very Toxic to aquatic life with long lasting Effects

Precautionary Statements

General

Not applicable.

Prevention

P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P220: Keep/Store away from clothing/combustible materials.

P221: Take any precaution to avoid mixing with combustibles.

P260: Do not breathe dust/fume/gas/mist/vapors/spray.

P264: Wash face, hands and any exposed skin thoroughly after handling.

P270: Do not eat, drink or smoke when using this product.

P273: Avoid release to the environment.

P280: Wear protective gloves/Protective clothing/Eye Protection/Face Protection

Response

P301 + P330 + P331 + P312: **IF SWALLOWED:** Rinse mouth. Do not induce vomiting. Call a Poison Center/Doctor/physician if feeling unwell.
P303 + P361 + P353: **IF ON SKIN** (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340: **IF INHALED:** Remove to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338: **IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P307 + P311: **IF EXPOSED:** Call a POISON CENTER or doctor/physician.
P310: Immediately call a POISON CENTER or doctor/physician.
P314: Get medical advice/attention if you feel unwell.
P321: Specific treatment (see supplemental first aid instructions on this label).
P330: Rinse mouth.
P363: Wash contaminated clothing before reuse.
P370 + P378: **IN CASE OF FIRE:** Use suitable extinguishing media for extinction.
P391: Collect spillage.

Storage

P405: Store locked up.

Disposal

P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC)

None known.

Section 3: Composition/Information on Ingredients

Substance

Chemical Identity ²	Common Name/Synonym(s)	CAS # ³	Weight %	Impurity or Stabilizing Additive
Potassium Permanganate	Permanganate of potash, Kalium Permanganate, Permanganato Potasico	7722-64-7	97 – 100%	No
Free flow / Anticaking Additive		1344-00-7	< 3%	No

- Information regarding the composition and the percent ranges of the mixtures ingredients are not presented as it Confidential Business Information (CBI). Where a medical emergency exists (as determined by medical professional), timely disclosure of CBI is assured. The information omitted pertains to only the names of the substances and the concentration in the mixture (product) and can only be requested by a doctor/physician or Local/State/Provincial or Federal Authority.
- Non-hazardous ingredients are not presented as to protect the proprietary formula of the product.
- “—” Indicates ingredient is a mixture and contains multiple ingredients or may have no identifying CAS number.

Section 4: First-Aid Measures

General Information

Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Wash contaminated clothing before reuse.

Inhalation

IF INHALED: Remove person to fresh air and keep at a rest position comfortable for breathing. Chronic Manganese Poisoning can result from excessive inhalation. Over exposure involves impairment of the central nervous system. Symptoms include sluggishness, sleepiness, and weakness in the legs: Call a poison center or doctor/physician.

Skin Contact

Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if irritation persists after washing. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes. IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.

Eye Contact

IF IN EYES: Rinse cautiously with water for up to 15 minutes. Remove contact lenses if present and easy to do so, continue rinsing. If eye irritation persists: Get immediate medical advice / attention.

Ingestion

IF INGESTED: If conscious, immediately rinse mouth. Drink plenty of water. Do not induce vomiting (Due to risk of perforation) Call a poison center/doctor/physician immediately. Never give anything by mouth if the person is unconscious.

Most important symptoms/effects, acute and delayed

Symptoms

Skin: Contact with dry crystals or concentrated solutions on skin can cause redness, severe burns, brown stains (due to insoluble manganese oxide) And possible hardening of the outer skin layer. Diluted solutions are only mildly irritating to the skin. Repeated or prolonged skin contact may cause defatting and dermatitis.
Eyes: Contact with eyes can cause severe irritation, redness, blurred vision, possible burns and permanent damage.
Inhalation: Inhalation can irritate respiratory tract, causing coughing, and shortness of breath delayed/chronic. Chronic manganese poisoning can result from excessive inhalation exposure to manganese dust and involves impairment of the central nervous system. Early symptoms include sluggishness, sleepiness and weakness in the legs.
Ingestion: Causes severe distress of gastrointestinal system with possible burns, shock with fall of blood pressure. May be fatal if ingestion of concentrations up to 1% can cause burning of the throat, vomiting, abdominal pain; 2-3% causes anemia and swelling of the throat with possible suffocation; 4-5% may cause kidney damage.

Indication of immediate medical attention and special treatment needed

Hazards

No data available.

Treatment

Treat symptomatically. Symptoms may be delayed.

Section 5: Fire-Fighting Measures

General Fire Hazards

Product is not combustible but is a strong oxidizer. Contact with oxidizable substances can cause explosive and /or flammable reactions. This oxidizer increases flammability of combustible materials. Watch for rapid burning and be prepared to retreat to a safe distance. Corrosive/ poisonous gases, vapors can be produced in a fire involving this material.

Suitable (and Unsuitable) Extinguishing Media

Suitable Extinguishing Media

Extinguish with large quantities of water from a distance to cool down flames and spray water to create blanket on the fire exposed area. Do not allow Run-off to enter sewers or the environment.

Unsuitable Extinguishing Media

Do not extinguish with foam, CO₂ Or halogenated materials.

Specific Hazards Arising from the Chemical

Product is not combustible but is a strong oxidizer. Contact with oxidizable substances can cause explosive and / or flammable reactions. This oxidizer increases flammability of combustible materials. Watch for rapid burning and be prepared to retreat to a safe distance. Corrosive / poisonous gases/vapors can be produced in a fire involving this material.

Special Protective Equipment and Precautions for Firefighters

Special Fire-Fighting Equipment Procedures

Corrosive and or poisonous gases are produced in a fire- wear a niosh approved self-contained breathing apparatus operated in pressure demand or positive pressure mode and full protective gear. Containers may explode in fire. Cool fire exposed containers with flooding quantities of water spray. Move containers from fire area if it can be done without risk. Note- strong oxidizers may explode and decompose spontaneously if exposed to intense heat. Concentrated acids, hydrogen peroxide, Reducing agents, or organic substances. Violent reaction may occur with finely divided and readily Oxidizeable substances.

Special Protective Equipment for Fire-Fighters

As in any fire, wear self-contained breathing apparatus pressure-demand (OSHA/NIOSH approved or equivalent) and full protective gear.

Section 6: Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

Clean spill promptly. Ventilate area. Eliminate sources of ignition. Wear full protective equipment. Avoid contact with skin, and eyes. Do not inhale dusts/mists/ vapors. Isolate area where spill has occurred. Keep combustibles away from the spill.

Methods and Materials for Containment and Clean-Up

Using non sparking utensils scoop or shovel up spilled material place in a labeled container (plastic or metal drum) For proper disposal. Avoid generating dust. Avoid contact with combustible materials.

Notification Procedures

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

Environmental Precautions

Dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Inform authorities if large amounts are involved.

Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

Section 7: Handling and Storage

Precautions for Safe Handling

Do not taste or swallow. Wash hands thoroughly after handling. Avoid contact with eyes. Keep away from food, drink and animal feeding stuffs. Keep away from combustible material. Do not eat, drink or smoke when using the product. Do not smoke, use open fire or other sources of ignition. Use personal protective equipment as required. See Section 8 of the SDS for Personal Protective Equipment. Observe good industrial hygiene practices. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Wear protective gloves/protective clothing/eye protection/face protection. Take any precaution to avoid mixing with combustibles. Wear fire/flame resistant/retardant clothing. Avoid contact with skin.

Conditions for Safe Storage, including any Incompatibilities

Keep container tightly closed. Store in a cool, dry, well-ventilated place. Store away from incompatible materials (See Section 10). Ensure that all local regulations regarding handling and storage facilities are followed. Eliminate sources of ignition.

Section 8: Exposure Controls/Personal Protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Value	Source
Potassium Permanganate – Respirable fraction. – as Mn	TWA	0.02 mg/m3	US. ACGIH Threshold Limit Values
Potassium Permanganate – Inhalable fraction. – as Mn	TWA	0.1 mg/m3	US. ACGIH Threshold Limit Values
Potassium Permanganate – as Mn	Ceiling	5 mg/m3	US OSHA Table Z-1
Manganese and inorganic compounds as Mn	Ceiling	5mg/m3	US OSHA Table Z-1

Biological Limit Values

The product does not contain any relevant quantities of hazardous materials with assigned biological limit values.

Appropriate Engineering Controls

Use local/ Mechanical exhaust to maintain air concentrations below occupational exposure standards. See above.

Individual protection measures, such as personal protective equipment (PPE)

General Information

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. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.

Eye/Face Protection

Safety goggles or glasses with side shields or full-face shield; have access to an eyewash station.

Skin Protection

Hand Protection

Wear appropriate chemical resistant gloves such as rubber or plastic

Other

Wear lab coat or coveralls to protect skin; access to a safety drench shower.

Respiratory Protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. See U.S. standard (20 CFR 1910.134) Contact health and safety professional or manufacturer for specific information

Hygiene Measures

Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Avoid contact with eyes, skin, and clothing.

Section 9: Physical and Chemical Properties

Appearance:

Physical State: Crystals
Color: Dark Purple

Odor:

Odorless

Odor Threshold:

No data available.

pH:

No data available.

Melting Point/Freezing Point:

Approximate 240 °C

Initial Boiling Point and Boiling Range:

No data available.

Flash Point:

Not applicable.

Evaporation Rate (butyl acetate=1):

No data available.

Flammability (solid, gas):

No data available.

Upper/Lower Limit on Flammability or Explosive Limits

Flammability Limit – Upper: No data available.

Flammability Limit – Lower: No data available.

Explosive Limit – Upper: No data available.

Explosive Limit – Lower: No data available.

Vapor Pressure:

No data available.

Vapor Density (air =1):

5.40

Relative Density (water=1):

2.7 (20 °C)

Density (g/cm3):

2.703

Solubility(ies):

Solubility in water: 6.38 g /100 cc

Solubility (other): No data available.

Partition coefficient (n-octanol/water):

No data available.

Auto-Ignition Temperature:

No data available.

Decomposition Temperature:

>150 °C (302 °F)

Viscosity:

No data available.

Other Information:

Molecular Weight: 158.03 g/mol

Formula: HMnO₄

Section 10: Stability and Reactivity

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical Stability

Material is stable under normal conditions.

Possibility of Hazardous Reactions

Potassium Permanganate is a strong oxidizer, Spontaneously explosive or flammable on contact with many incompatibles. (See below) Contact with hydrochloric acid will liberate chlorine gas. Do not mix with formaldehyde.

Conditions to Avoid

Contact with incompatible materials; Excessive heat (>150 °C) Physical impact of friction.

Incompatible Materials

Avoid contact with alcohols, Arsenites, Iodides, acids, formaldehyde, charcoal, combustible organic materials, ferrous and mercurous salts, hypophosphates, Sulfites, Peroxides, Oxalates, inorganic Oxidizable materials, metal powders, wood, Glycerine, polypropylene, and heat.

Hazardous Decomposition Products

Toxic, corrosive metal fumes may form when heated to decomposition.

Section 11: Toxicological Information

Information on routes of exposure

Ingestion: Ingestion of powder or solution can cause severe irritation or burns to mouth, throat, esophagus, and stomach with difficulty in breathing, nausea, gastrointestinal effects, shock with fall of blood pressure, possible kidney damage. Experimental reproductive effects and mutation data have been reported in literature.

Inhalation: Inhalation of dust, mist, or solution spray can irritate nose, throat, and respiratory tract causing coughing, chest tightness, and possible damage to the respiratory system. High inhalation exposures can cause a buildup of fluid in the lungs (pulmonary edema) which may result in death.

Skin Contact: Contact with dry crystals or concentrated solutions will irritate and act as a corrosive, causing burns to skin and body tissue on contact. Contact area will be stained brown, and the outer layer of skin will possibly harden.

Eye Contact: Contact with eyes can cause severe burns resulting in eye damage.

Information on Toxicological Effects

Acute Toxicity (List all possible routes of exposure)

Oral

Potassium Permanganate: LD50 (Rat): 1090 mg/kg
Potassium Permanganate: LD50 (Male Rat): 780 mg/kg
Potassium Permanganate: LD50 (Female Rat): 525 mg/kg
Potassium Permanganate: LDLo: (Human) 143 mg/kg

Dermal

No data available.

Inhalation

No data available.

Repeated Dose Toxicity

No data available.

Skin Corrosion/Irritation

Contact with dry crystals or concentrated solutions will irritate and act as a corrosive. Causing burns to skin and body tissue on contact. Contact area will be stained brown and the outer layer of skin will possibly harden.

Serious Eye Damage/Eye Irritation

Can cause severe burns resulting in eye damage.

Respiratory/Skin Sensitization

Inhalation of mist, solution or spray can irritate nose, throat, and respiratory tract causing coughing, chest tightness, and possible damage due to the respiratory system. High inhalation exposures can cause a buildup of fluid in the lungs (pulmonary edema) which may result in death.

Carcinogenicity

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

US. National Toxicology Program (NTP) Report on Carcinogens

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Germ Cell Mutagenicity

In Vitro

No mutagenic components identified.

In Vivo

No mutagenic components identified.

Reproductive Toxicity

None known.

Specific Target Organ Toxicity – Single Exposure

None known.

Specific Target Organ Toxicity – Repeated Exposure

None known.

Aspiration Hazard

Not classified.

Other Effects

Chronic: Repeated or prolonged skin contact may cause defatting and dermatitis. Long term inhalation of manganese dusts (usually in form of manganese oxides) may lead to a high incidence of upper respiratory infections, lung irritation, and possible central nervous system disorders with symptoms simulating parkinson's disease.

Section 12: Ecological Information

Ecotoxicity

Acute Hazards to the Aquatic Environment

Fish

Potassium Permanganate: LC 50 (Rainbow trout, donaldson trout (*Oncorhynchus mykiss*), 96 h): 0.267 - 0.442 mg/l Mortality
Potassium Permanganate: LC 50 (Striped bass (*Morone saxatilis*), 96 h): 0.348 mg/l Mortality
Potassium Permanganate: LC 50 (Bluegill (*Lepomis macrochirus*), 96 h): 0.713 - 0.959 mg/l Mortality

Aquatic Invertebrates

Potassium Permanganate: EC 50 (Amphipod (*Crangonyx pseudogracilis*), 48 h): 0.86 - 1.12 mg/l Intoxication
Potassium Permanganate: LC 50 (Zebra mussel (*Dreissena polymorpha*), 48 h): > 40 mg/l Mortality

Toxicity to Aquatic Plants

No data available.

Chronic Hazards to the Aquatic Environment

Fish

No data available.

Aquatic Invertebrates

No data available.

Toxicity to Aquatic Plants

No data available.

Persistence and Degradability

Biodegradation

There are no data on the degradability of this product. Permanganate is expected to have a low estimated lifetime as it is readily converted to insoluble manganese oxide by oxidizable materials.

BOD/COD Ratio

No data available.

Bioaccumulative Potential

Bioconcentration Factor (BCF)

No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)

No data available.

Mobility in Soil

The product is water soluble and may spread in water systems.

Other Adverse Effects

Very toxic to aquatic life with long lasting effects.

Section 13: Disposal Considerations

Disposal Instructions

Dispose of contents/ containers in accordance with local, regional, national, international regulations. Do not release to the environment. Dispose of in sealed containers, using a licensed chemical waste hauler.

Contaminated Packaging

Since emptied containers retain product residue, follow label warnings even after container is emptied.

Section 14: Transportation Information

US Department of Transportation (DOT)

UN Number: UN1490
UN Proper Shipping Name: Potassium permanganate
Technical Name:
Hazard Class: 5.1
Subsidiary Hazard Risk: -
Packing Group: II
DOT Label/Placard Exemptions: Not determined
Special Provisions: IB8, IP2, IP4, T3, TP33
Packaging Exceptions: 49CFR 173.152
Packaging Non-Bulk: 49CFR 173.212
Packaging Bulk: 49CFR 173.240
Reportable Quantity (RQ): 100lb (45.4kg)
Marine Pollutant: No
Poison Inhalation Hazard: No
Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Emergency Response Guidebook (ERG) #: 140

Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

Section 15: Regulatory Information

US Federal Regulations

Toxic Substance Control Act (TSCA), Chemical Substance Inventory, Section 8(b)

This product or ingredient(s) are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substance List (40 CFR 302.4)

The following chemical(s) in this material are subject to reporting levels established by CERCLA:

Potassium Permanganate (CAS# 7722-64-7)

Clean Air Act (CAA), Section 112(r)

No chemical(s) in this material are subject to the reporting requirements of CAA.

Emergency Planning and Community Right-To-Know Act (EPCRA)

EPCRA 302 Extremely Hazardous Substance

No chemical(s) in this material are subject to the reporting requirements of SARA Title III, Section 302.

EPCRA 304 Emergency Response Notification

No chemical(s) in this material are subject to the reporting requirements of SARA Title III, Section 304.

EPCRA 311/312 Emergency and Hazardous Materials Reporting

Fire Hazard: Yes

Sudden Release of Pressure: No

Reactive: Yes

Acute (Immediate) Health Hazard: Yes

Chronic (Delayed) Health Hazard: Yes

EPCRA 313 Toxic Chemical Release Inventory (TRI) Reporting

The following chemical(s) in this material are subject to reporting levels established by SARA Title III, Section 313:

Potassium Permanganate (CAS# 7722-64-7)

US State Regulations

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

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Important Note: Due to the changing nature of regulatory requirements, the information in this document should NOT be considered all-inclusive or authoritative. Users should make their own investigations to determine the suitability of the information for their particular purposes. International, Federal, State and Local regulations should be consulted to determine compliance with all required reporting requirements.

Section 16: Other Information

Hazardous Materials Identification System (HMIS®) Classification

Health Hazard: 3

Chronic Health Hazard: *

Flammability: 0

Physical Hazard: 1

Personal Protection: X

(Hazard Rating: 0 – Minimal / 1 – Slight / 2 – Moderate / 3 – Serious / 4 – Severe)

National Fire Protection Association (NFPA 704) Rating

Health Hazard: 3

Fire Hazard: 0

Reactivity Hazard: 1

Special: OX

(Hazard Rating: 0 – Minimal / 1 – Slight / 2 – Moderate / 3 – Serious / 4 – Severe)

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Key to Abbreviations and Acronyms

ATE - Acute Toxicity Estimate

BCF - Bioconcentration Factor

EC50 - Effective concentration, 50%

IDHL - Immediately Dangerous to Life and Health

Kg - Kilogram

l - Liter

lb - Pound

ACGIH - American Conference of Industrial Hygienists

AIHA - American Industrial Hygiene Association

BEI - Biological Exposure Indices

CAS - Chemical Abstracts Service

DOT - US Department of Transportation

EPA - US Environmental Protection Agency

GHS - Globally Harmonized System of Classification and Labelling of Chemicals

LC50 - Lethal Concentration, 50%
LD50 - Lethal Dose, 50%
mg - milligram
ml - milliliter
N/A - Not Applicable
N/D - Not Determined
PEL - Permissible Exposure Limit
REL - Recommended Exposure Limit
STEL - Short-term Exposure Limit
TWA - Time weighted average

IARC - International Agency for Research on Cancer
IATA - International Air Transport Association
IBC - Intermediate Bulk Container
IMDG - International Maritime Dangerous Goods
NIOSH - National Institute for Occupational Safety and Health
NTP - National Toxicology Program
OSHA - US Occupational Health and Safety Administration
SARA - US EPA Superfund Amendments and Reauthorization Act
TSCA - US EPA Toxic Substances Control Act
UN - United Nations

References

HSDB® - Hazardous Substances Data Bank

Disclaimer

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