BCEHS | BC Emergency Health Services

Paramedic Specialist

Chemical Response Data Sheet

NaCLO3 2018 1.0

Chemical Name: Sodium Chlorate (NaClo3)

Identifying Data: **UN # 2428 Solution** **CAS # 7775-09-9**
UN # 1495 Solid

Classification: Oxidizer

WHMIS 2015 Symbols

Solid

Placard

NFPA Rating

Solution

Physical Properties:

Colour	Clear to pale yellow
Odor	Odorless
Vapour Density	N/A (water vapour)
Boiling Point	Varies. Typically between 102 -108C
PH	7-9
Specific Gravity	Varies. Typically between 1.15 -1.45
Solubility	Completely soluble in water
Vapor Pressure	N/A vapor is water

General Description:
Found in both a clear/yellow solution or a granular solid. Both are a **powerful oxidizer when dry.** Contact with any organics (clothes, tires, wood) poses as large fire risk when dry. Contact with strong acid will cause an exothermic reaction. Mild skin irritant but may cause damage to eyes. No respiratory concern unless reacting.

Commonly Found Locations:

- Pulp and Paper mills for bleaching (Main use)
- Transportation in both solid (crystal) and liquid form
- Herbicides
- Defoliants
- Desiccants
-

Work Safe BC Permissible Limits

TWA *** **STEL/Ceiling** *** **IDLH** *** No Limits have been published

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Paramedic Specialist Procedures to Consider:

- Evacuate immediate area and further as situation dictates.
- Does not pose an inhalation hazard.
- Stop anyone from walking or driving thru liquid spill! Must be wearing proper PPE.
- **Strong Oxidizer!** Prevent spill from coming in contact with Organics or Acid. (See Fire and Reactivity) Shock sensitive when dry. Keep wet before entering area.
- Run off may pose fire or explosion hazard.
- Do not enter spill areas unless in appropriate PPE for Sodium chlorate. (See PPE section)
- In the event of an emergency rescue of a patient in spilled solution, complete wet Decon is required. Product is not corrosive. See Emergency Decontamination below.

Key Points:

1. **NOT** an inhalation hazard, or a strong corrosive.
2. POWERFUL Oxidizer.
3. Extreme risk of flash fire when in contacts with clothing or tires (organics) when dry.
4. May be fatal if ingested.

(See Also)

TDG Reference: Guide 140

Emergency Decontamination

- Have patient Self-Decon with direction as needed from safe distance. Assist removing clothing if needed with appropriate PPE to prevent secondary contamination and injury.
- Use water for decontamination. Large volume/low pressure. Tepid if immediately available.
- **Eyes take precedence.**
- Ensure patient is fully decontaminated. Do not forget skinfolds, armpits, groin, buttocks and feet. Do not cause hypothermia.
- **All clothing that was contaminated must be kept wet and placed away and marked for proper disposal.**
- See Pre-Hospital Care below for further information.

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Fire and Reactivity:

- Non-Flammable, **strong oxidizer** (supports combustion)
- Mixture with the solution on combustible will **readily ignite or explode if allowed to dry. Shock sensitive and friction sensitive when dry.**
- **Use only water to extinguish if involved in fire.** Dry Chemical extinguishers may cause explosive compound to be formed. C02 extinguishers will be ineffective.
- May form toxic compounds Chlorine, Chlorine Dioxide, Hydrogen Chloride and Sodium Oxide if involved in a fire.
- Will emit Chlorine and Chlorine Dioxide if comes in contact with a strong acid. (Sulfuric)
- May explode violently when in contact with other incompatible substances; such as but are not limited to; phosphorus, sulfur, acids, sulfides, ammonium compounds and powdered metals.
- **Containers have exploded violently that were involved in a fire or heated.**
- When dried and heated to (265C) decomposes to oxygen and salt

PPE:

- SCBA Turnout/Coveralls for spills that are on fire.
- Respiratory protection. SCBA if on fire or involved in chemical reaction.
- Safety glasses, face shield, PVC or rubber rain suit, rubber gloves for spills.
- Utilize chemical compatibility charts for permeation and degradation times to determine optimum PPE protection to be worn.
- Class B Personal Protective Clothing (PPC) recommended. Full Decon of SCBA required upon re-entering Warm Zone.

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Toxidrome: Systemic Poison; Delayed effects >1hr, nausea, vomiting, abdominal pain, diarrhea, dyspnea (short of breath) **and cyanosis (blueish skin** may be only recognizable sign)

Primary route of exposure: Ingestion

Primary Targets of Toxicity: Blood/Liver/kidneys

- May be fatal if ingested. As little as 10 grams may prove fatal in the adult.
- Chlorate ion in blood results in systemic poisoning and cellular hypoxia due to Methemoglobinemia. Will result in kidney and liver failure and death if not recognized early and treated at Hospital.
- May cause delayed effects on respiratory system.
- Limited data if poisoning may occur thru absorption of inhalation.
- Not believed to be toxic thru skin absorption. Flush with soap and water regardless.
- Irritating to the eyes, skin and respiratory tract.

Pre - Hospital Care:

- Remove victim from hazardous area utilizing appropriate PPE for hazard.
- Remove all contaminated clothing from victim(s).
- **Eyes take precedence**, flush with tepid water at per chemical exposure and seek medical aid.
- Flush with water as per training for chemical burns.
- Apply High flow 02 with NRB. Assist ventilations with BVM if required.
- Treat patient following support of ABC's as per training.
- **Contact BC Poison Control at 1-800 -567-8911 or 604-682-5050 for Physician advisement on patient care.**
- **If ingested will require Emergency Hospital care.** Sodium chlorate ingestion results in the destruction of blood cells, severe Methemoglobinemia, kidney and liver failure. Intensive care and possible Hemodialysis will be required.

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References and Links:

www.ercoworldwide.com/wp-content/uploads/SDSC-Sodium-Chlorite-Solution.pdf

WISER (Wireless Information System for Emergency Responders)

AHLS Provider Manual/4th edition.

WorkSafe BC/Exposure Limits

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