

Inhalation of volatile substances as recreational drugs is more common among adolescents. See separate guideline for Nitrous Oxide exposures.

Toxicity / Risk Assessment

'Chroming' is a general term to describe the inhalation of volatile substances /solvents.

- **Huffing** – inhaling from a soaked cloth over face
- **Sniffing** – directly inhaling from the container
- **Bagging** – inhaling vapors from a plastic bag

A wide range of volatile solvents are used:

- Petroleum products (petrol, kerosene)
- Butane (deodorants, hairspray, lighter fluid)
- Toluene (paint thinners, model glue, spray paint)
- Acetone (nail polish remover)

Clinical features (usually short-lived < 6 hours)

Euphoria, disinhibition, impulsive behaviour followed by CNS depression, dysarthria, ataxia

Acute medical complications:

CVS: Palpitations, tachyarrhythmias, ↑QT, sudden death

CNS: Encephalopathy, coma, seizures

Resp: Aspiration and secondary pneumonitis

Metabolic: toluene causes metabolic acidosis, and renal tubular acidosis with secondary ↓K⁺

Management

Supportive care is the mainstay of treatment

Manage airway urgently if compromised from decreased level of consciousness (unlikely)

Decontamination:

There is no role for any decontamination for inhaled hydrocarbons/volatile substances.

Cardiac arrest/Ventricular tachyarrhythmias: (seek advice from a clinical toxicologist)

Resuscitation should be as per standard ACLS protocols, but limit use of adrenaline post initial resuscitation due to the presence of myocardial sensitization to catecholamines.

Consider using a short acting beta blocker such as esmolol for refractory ventricular tachyarrhythmias

Seizures:

Administer diazepam 5-10 mg IV every 5-10 minutes as required

Behavioural disturbance:

Administer diazepam 5-10 mg IV every 5-10 minutes to achieve gentle sedation

Prolonged QT interval: (see separate QT prolongation guideline)

Correct any electrolyte disturbances: ensure [K⁺] > 4.5-5.5 mmol/L, [Ca²⁺] > 2 mmol/L, [Mg²⁺] > 1.0 mmol/L

Disposition:

Observe until asymptomatic and well (normal vital signs, normal ECG, normal electrolytes)