

CARIBBEAN POISON INFORMATION NETWORK



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Toxic Effects of Household Products

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Overview



Potentially dangerous chemicals are all around us. Many have beneficial uses which help improve our quality of life. Unfortunately, accidental poisonings involving products found in the home occur. These frequently result in injury especially to young children. This presentation will explore some of the hazardous properties of products commonly found in the home and emergency measures to be taken if accidents occur.



Hazardous Chemicals In Daily Life

- Pharmaceuticals/Personal Care Products
- Household Cleaners and Disinfectants
- Pest Control Products
- Fuels

Drugs



- OTC drugs eg. Pain relievers, Multisymptom cough/cold preparations, Preparations for Topical use
- Prescription Drugs eg. antidiabetics, anti hypertensives, sedatives, anticonvulsants etc.
- Illicit drugs eg cocaine, marijuana

Household products



- Chlorine Bleach hypochlorites
- Toilet cleaners acids
- Limescale removers acids
- Drain cleaners lye/hypochlorites
- Household ammonia ammonia
- Disinfectants cationic surfactants
- Insect sprays petroleum distillates
- Rodent baits anticoagulants



Personal Care Products

- Rubbing Alcohol isopropyl/ethyl alcohol
- Colognes ethyl alcohol
- Hairspray ethyl alcohol
- Acne Treatments salicylic acid/alcohol
- Nail Polish Remover acetone



Automotive Products

- Engine Coolant ethylene glycol
- Windshield Cleaner methanol
- Brake Fluid glycol ethers
- Transmission Fluid mineral oils
- Lubricating Oil mineral oils



Fuels

- Kerosene
- Gasoline
- Cooking Gas

Chlorine Bleach



- Chlorine bleach contains sodium hypochlorite.
- Sodium hypochlorite is a powerful oxidizing agent.
- Aqueous solutions used for bleaching, disinfection and water purification.
- Household bleach contains about 5% of sodium hypochlorite

Toxic Properties of Chlorine Bleach



- Toxicity arises from its corrosive activity on skin and mucous membranes
- Contact with skin can cause irritation or dermatitis
- Contact with the eyes can cause burning and redness
- Inhalation of fumes causes irritation of respiratory tract



Toxic Properties of Chlorine Bleach

- Inhalation of fumes can exacerbate medical conditions such as asthma, emphysema, bronchitis
- Mixing of chlorine bleach with strong acids can release chlorine gas
- Mixing with ammonia can release chloramines



Toxic Properties of Chlorine Bleach

- Ingestion of chlorine bleach causes pain and inflammation of the mouth, throat, esophagus and stomach
- Abdominal pain and vomiting likely
- Erosion of mucous membranes may occur



Emergency Intervention

- If ingested, immediately swallow water, milk
- If spilled on the skin, wash liberally with water
- Flood eyes with water
- Move to fresh air if fumes inhaled
- Seek medical assistance

Toxic Properties of Ammonia



- Ammonia found in household cleaners, liniments and aromatic spirits
- Household ammonia contains 5-10% of ammonia
- Ammonia vapour very irritating to eyes and respiratory tract
- Ingestion of solutions can cause irritation to the gastrointestinal tract
- Mixing with chlorine bleach produces dangerous chloramines

Emergency Intervention



- If ingested, immediately drink large amount of water or weak acids such as diluted vinegar, lime juice, or orange juice
- Splashes in the eye or on skin should be washed liberally with water
- Persistent adverse effects from household ammonia unlikely

Toxic properties of Drain Cleaners



- Most commercial products for household use contain sodium hydroxide or a mixture of sodium hydroxide and sodium hypochlorite
- Solutions are extremely corrosive and penetrating
- Dissolves proteins, collagen, saponifies lipids



Toxic properties of Drain Cleaners

- Ingestion causes swallowing to become painful and difficult almost immediately
- Injury to mouth and esophagus likely
- Contact with skin can cause burns
- Serious damage to eyes
- Mixing with ammonia solutions can release dangerous fumes

Emergency Intervention



- If ingested, drink water or milk
- If product contains sodium hydroxide only, dilute acid solution eg. dilute vinegar, lime juice or orange juice may be administered
- Dilute acid should not be administered if product contains hypochlorite
- Wash eyes and skin liberally with water
- Seek medical advice



Toxic Properties of Engine Coolant

- Engine coolants contain ethylene glycol
- Ethylene glycol is poisonous and is known to cause kidney failure
- Fatalities from ingesting pharmaceuticals contaminated with ethylene glycol well known
- In the USA most accidental poisoning due to ingestion of coolant occurs in pets and young children

Toxic Properties of Engine Coolant



- Ethylene glycol has a sweet taste and smell
- As little as two tablespoons can be hazardous to children
- When ingested, ethylene glycol is converted to oxalic acid which damages the kidneys and can cause kidney failure and death

Symptoms of Ethylene glycol Poisoning



- Central nervous system depression
- No urine output
- Nausea and vomiting
- Rapid breathing
- Rapid heartbeat
- Headache, weakness, fatigue, stupor
- Blurred vision

Emergency Treatment



- SEEK MEDICAL HELP WITHOUT DELAY
- Be prepared to provide information on product ingested, amount swallowed, time swallowed
- Take product to hospital if possible

Toxic properties of Windshield Washer Concentrate



- Windshield washer concentrate contains high concentration of methanol
- Methanol is extremely toxic. As little as two teaspoons can be toxic if ingested
- Symptoms may not develop immediately
- Symptoms include inebriation, headache nausea, vomiting dimness of vision, weak rapid pulse.
- Fatalities result from respiratory failure

Emergency Treatment



- SEEK MEDICAL HELP WITHOUT DELAY
- Outcome dependent on how much was swallowed and how soon appropriate care was given
- Two tablespoons of methanol can kill a child, while four to sixteen tablespoons can kill an adult

Harmful Properties of Isopropanol



- Isopropanol (Isopropyl alcohol) found in rubbing alcohol and some cleaning products
- Isopropanol has 2-3 times the potency of ethanol
- Causes hypotension and CNS respiratory depression more readily than ethanol
- May cause gastroenteritis and haemolytic anaemia

Kerosene and its Uses



- Kerosene is one of several petroleum distillates
- Consists predominantly of hydrocarbons lying between nonane and hexadecane
- Used as cooking fuel, lamp fuel, vehicles for pesticides, paint thinners

Toxic Effects of Kerosene



- Ingestion of kerosene can cause several symptoms such as
- Local irritation and burning sensation in mouth, esophagus and stomach
- Vomiting and diarrhoea
- Drowsiness
- Hypotension and collapse
- Ingestion can be fatal



Toxic Effects of Kerosene

- Inhalation of vapours can cause breathing difficulty and swelling of the throat
- Aspiration into the lungs can cause serious (possibly permanent) lung damage
- Contact with the skin can cause irritation and burns
- Contact with the eyes can cause pain and loss of vision

Emergency Treatment



- SEEK MEDICAL ATTENTION
- DO NOT INDUCE VOMITING
- Prognosis dependent on quantity ingested, whether or not aspiration occurred and how quickly treatment is received
- Damage can occur for several weeks after ingestion
- Death can occur as long as a month afterwards

Toxicological Investigation



Samples to be collected

- Vomit
- Stomach aspirate or wash
- Blood
- Urine
- Suspected poison, if available

Safety at Home



- Store potentially hazardous products away from the reach of children, preferably in locked cupboards
- Ensure that products are adequately labelled
- NEVER repackage products into food containers
- Where possible, give preference to products packaged in containers with child-proof closures
- Keep young children under close supervision
- Be aware of basic first-aid procedures



THANK YOU !