# METHAQUALONE: HEALTH, HEAT, AND WATER REACTIVITY OF CHEMICALS ASSOCIATED WITH ITS ILLEGAL MANUFACTURE.

| Chemical | Health Effects of Chemical | Effect of Heat | Water Reactivity | Comments |
|---|---|---|---|---|
| **Acetic Anhydride** | An acute irritant to eyes, skin and respiratory tract (1,2). Can cause necrosis of tissue in liquid or vapor form (5). | Flammable vapor. Forms explosive mixture with air. Flash point 125°F. Produces toxic fumes (1). | Forms acetic acid. Slowly soluble in water (5). | |
| **N-Acetylanthranilic Acid** | No information available. | | | |
| **Ammonium Hydroxide** | Very irritating, liquid can cause burns (4). Causes severe eye irritation, severe skin burns, erythema and edema of mucous membranes, chest pain, bronchospasm, dyspnea, wheezing, laryngeal stridor and pulmonary edema (1). | Emits toxic fumes (4). | Reacts violently with water (1). | Forms explosive compounds with silver salts (1). |
| **Anthranilic Acid(O-Aminobenzoic Acid)** | | | Soluble in water (5). | |
| **Benzenesulfonic Acid** | Moderate to high toxicity via oral exposure and possibly via inhalation exposure (4). Highly irritating to skin,eyes, and mucous membranes (5). | Releases highly toxic sulfur oxide fumes (4). | Soluble in water (5). | Violent reaction with aluminum and magnesium (4). |
| **Benzensulfonyl Chloride** | Moderate oral toxicity (4). | Releases highly toxic sulfur oxide fumes (4). | Insoluble in water (5). | Violent reaction with aluminum and magnesium (4). |
| **Chloroform** | Eye contact causes moderate irritation. Prolonged skin exposure causes mild burn. Inhalation of high concentrations causes HA, dizziness, N, intoxication, coma and anoxia which increases car-diac irritability (1,2,5). Carcinogenic (5). | Non-flammable. Decomposes to form HCl and phosgene (1). | Poorly soluble in water (5). | Reacts violently with aluminum, potassium and strong bases (1). |

| Chemical | Health Effects of Chemical | Effect of Heat | Water Reactivity | Comments |
|---|---|---|---|---|
| **Ethanol** | Excessive inhalation of vapors is irritating to eyes and upper respiratory tract (6). Inhalation of vapors causes drowsiness, ataxia, stupor (6). Eye contact causes burning and stinging and skin contact has a defatting action. | Flammable. Combustible. Container may explode in heat (1). Flash point 55°F (6). | | The addition of alcohols to highly concentrated hydrogen peroxide forms powerful explosives that can be detonated by shock (2). Ethanol plus iodine and methanol and mercuric oxide produce an explosive reaction (2). Reacts with alkali metals to liberate $H_2$ (6). |
| **Ethyl Ether (Diethyl Ether) (Ether)** | Inhalation results in dizziness, giddiness, euphoria, CNS depression, and unconsciousness (1). Prolonged exposure to high concentrations can cause eye injury, cough and laryngeal spasms (1). Can cause liver and kidney damage (1). | Forms flammable mixtures with air. Flash point -49°F (2). In presence of air unstable peroxides can form which may explode spontaneously or when heated (2). | Not soluble in water (2). Water can help prevent peroxide formation (6). | Explodes when mixed with chlorine gas (2). A drop of anhydrous perchloric acid in ether causes a violent explosion (2). |
| **Hydrochloric Acid** | Causes irritation to the eyes, skin and respiratory tract (2). Causes dyspnea, chest pain, hypoxemia, pulmonary edema, vomiting and severe burns (1). | Not combustible (2). | Soluble in water (2). | Contact with common metals forms $H_2$, which is explosive (2). |
| **Methanol** | Effects are delayed for 18-24 hours. Causes CNS depression, anion gap metabolic acidosis, visual defects (1). Contact with skin causes dermatitis and erythema (6). Direct contact with eye causes irritation and pain and transient corneal opacity (6). | Flash point 52°F (1). Container may explode in heat of fire. Vapor explosion hazard (1). Thermal decomposition produces CO, $CO_2$, and possibly toxic formaldehyde (6). | | Explosive when exposed to oxide mixtures (1). Reacts violently with many products including chromic anhydride, iodine plus ethanol, mercuric oxide, and metallic aluminum (6). |

| Chemical | Health Effects of Chemical | Effect of Heat | Water Reactivity | Comments |
|---|---|---|---|---|
| **Ortho-Nitrotoluene** | Moderately toxic via oral or dermal route (4). | Flash point 223°F. Explosive when heated. Emits toxic fumes (4). | Almost insoluble in water (4). | Powerful oxidizing agent (4). |
| **Ortho-Toluidine** | Highly toxic when absorbed through skin or inhaled or swallowed(2). | Combustible. Explosive when heated. Flash point 185°F (2). | Not soluble in water (4). | The hydrochloride form is a carcinogen (4). |
| **Phosphoric Acid** | Moderately irritating to eyes, skin and mucous membranes (2). Contact with eyes causes severe pain and corneal erosions. Inhalation exposure causes dyspnea, chest pain, pulmonary edema (1). | Not combustible but toxic vapors may be formed (2). | Soluble in water (2). | Contact with common metals causes release of $H_2$, which is flammable in air (1). |
| **Phosphorus Oxychloride (Phosphoryl Chloride)** | Liquid causes skin burns. Vapors and fumes are irritating to eyes, skin and respiratory tract (2). Causes HA, N, V, chemical burns, acute bronchitis with or without sputum production, and a sense of suffocation, pneumonia, pulmonary edema, an increase in LFTs, and albuminuria and hematuria (1). | Non combustible. Explosive (1). | Reacts violently to form HCl and phosphoric acid and flammable $H_2$ gas with release of heat (1). | Corrosive to many metals (1). |
| **Phosphorus Pentoxide (Phosphoric Anhydride)** | Highly caustic (4). Causes eye and respiratory tract irritation - wheezing, cough, dyspnea and chest pain (4). Skin contact causes severe burns. Chronic exposure causes anemia (1). | Will self ignite. Burns rapidly. Will reignite after fire is extinguished (1). | Reacts violently with water to produce heat (4). | Reacts vigorously with reducing material (4). |

| Chemical | Health Effects of Chemical | Effect of Heat | Water Reactivity | Comments |
|---|---|---|---|---|
| **Phosphorus Trichloride** | Vapors are extremely irritating. Moist tissues, eyes, lungs can be acid burned (2). Can cause dizziness HA, N, V, respiratory difficulty, hepatotoxicity, and is corrosive to skin and mucous membranes (1). | Non-flammable. Vapors are extremely irritating (2). When heated emits chlorides and oxides of phosphorous (1). | Reacts violently with water producing flashes of fire. Even moisture causes HCl and phosphoric acid and toxic fumes of phosphine, chlorine gas (2). | Contact with metals cause release of $H_2$ which is flammable in air (2). Reacts with water, heat, toxic fumes of phosphine, chlorine gas and phosphorous metal (2). |
| **Polyphosphoric Acid (Phospholeum)** | Moderately irritating to eyes, skin and mucous membranes (4). Contact with eyes causes irritation, conjunctivitis. Skin contact can cause burns (1). | Emits highly toxic fumes of phosphorous pentoxide (1). | Water soluble - reacts with water to produce heat (4). | |
| **Potassium Bisulfate (Potassium Hydrogen Sulfate)** | Can be corrosive (4). | Emits highly toxic fumes of sulfates (4). | Soluble in water - reacts with water to produce heat (4). | Violent reaction with aluminum and magnesium. Can react with reducing and oxidizing substances (4). |
| **Pyridine** | Eye, skin and respiratory irritant (2). Excessive inhalation produces irritation of respiratory tract, asthmatic breathing, HA, dizziness and CNS depression (6). Also causes liver and kidney damage (6). | Vapor forms explosive mixtures with air (2). Flash point 68°F. Thermal oxidative reaction produces toxic nitrogen containing products including oxides of nitrogen and cyanide (6). | | Reacts exothermically with acids (6). |
| **Sodium Bicarbonate** | Causes pulmonary irritation of inhaled (5). | | Soluble in water. Gives off $CO_2$ (5). | Readily reduced by acids (5). |
| **Sodium Hydroxide** | Severely hazardous. Can destroy tissue on contact. Corrosive to all tissue (2,5). Causes stridor, dyspnea, pulmonary edema, severe burns of eyes and skin (1). | Not combustible. | With acids and water, can generate enough heat to ignite combustible materials (5) | Contact with metals can generate $H_2$ gas (2). |

| Chemical | Health Effects of Chemical | Effect of Heat | Water Reactivity | COMMENTS |
|---|---|---|---|---|
| **Toluene (Methyl Benzene)** | Eye and respiratory tract irritant. Extreme inhalation exposure can cause respira-tory paralysis (2). Narcotic in high concentrations (5). Inhalation exposure causes weakness, confusion, fatigue, lacrimation. This progresses to euphoria, HA, dizziness, N, muscular weakness, collapse, coma. Bronchial irritation, respiratory failure, cardiac sensitization and renal toxicity can occur (1). | Flammable, explosive. Flash point 40°F (2). Container can explode in heat of fire (1). Can be ignited by heat and produces irritating and toxic fumes. | Not soluble in water (2). | Reacts with oxidizers (1). |

# PHENCYCLIDINE: HEALTH, HEAT, AND WATER REACTIVITY OF CHEMICALS ASSOCIATED WITH ITS ILLEGAL MANUFACTURE.

| Chemical | Health Effects of Chemical | Effect of Heat | Water Reactivity | Comments |
|---|---|---|---|---|
| **Acetic Anhydride** | An acute irritant to eyes, skin and respiratory tract (1,2). Can cause necrosis of tissue in liquid or vapor form (5). | Flammable vapor. Forms explosive mixture with air. Flash point 125°F. Produces toxic fumes (1). | Forms acetic acid. Slowly soluble in water (5). | |
| **Acetic Acid** | Strong irritant of eyes, nose, throat and lungs. Repeated exposure may produce congestion of the pharynx. Skin contact may produce deep burns (6). | Flash point 109°F. Vapor forms explosive mixture with air (2). When burned, decomposes to CO and $CO_2$ (6). | Diluted with water, acetic acid can react with metals to produce $H_2$ (6). May react violently with water (1). | May react violently with strong oxidizing agents and alkaline material (6). Nitric acid or chromic acid can explode with acetic acid if not kept cold (6). Reacts strongly with many compounds including peroxides, acetaldehyde, perchloric acid (1). |
| **Alpha Methyl Styrene (l-methyl-l-phenyl ethylene)** | Moderately toxic via oral and inhalation routes (4). Causes nasal irritation, dizziness, narcosis; long term exposure causes liver and kidney effects (1). | Flash point 129°F (4). Heat causes an exothermic reaction (1). | Insoluble in water (4). | |
| **Ammonium Chloride** | Respiratory and eye irritant (2). | Dissociates to form ammonia and HCl. Heated with acids causes HCl. Heated with alkalies causes release of ammonia (2). | Soluble in water (2). Strongly endothermic (5). | |
| **Ammonium Hydroxide** | Very irritating; liquid can cause burns (4). Causes severe eye irritation, severe skin burns, erythema and edema of mucous mem-branes, chest pain, bronchospasm, wheezing, dyspnea, laryngeal stridor, and pulmonary edema (1). | Emits toxic fumes (4). | Reacts violently with water (1). | Forms explosive compounds with silver salts (1). |

| Chemical | Health Effects of Chemical | Effect of Heat | Water Reactivity | Comments |
|---|---|---|---|---|
| **Benzaldehyde (Benzoic Aldehyde)** | Acts as a local anesthetic. Contact with skin or eyes causes irritation. CNS depression in small doses (2). | Combustible. Flammable. Flash point 148°F (2). | Not soluble in water (2). | |
| **Benzene** | Inhalation can be lethal. An eye and skin irritant (2). Causes lung irritation, cardiac arrhythmias, respi-ratory failure, pulmonary edema, HA, giddiness, vertigo, ataxia, fatigue, confusion, seizures, coma, hepatotoxicity, aplastic anemia, and leukemia (1). | Flammable liquid. Combustible. Vapors explosive. Flash point 12°F (2). | Not soluble in water (2). | |
| **Benzyl Cyanide (Phenyl Acetonitrile)** | Slight concentrations may cause N, V, HA, lassitude. High concentrations cause severe lassitude, respiratory depression, shock, coma, seizures. Splash contact causes faint erythema (1). | Combustion produces nitrogen oxides (1) which cause N, slight cough, or severe sx of pulmonary edema, or methemoglob-inemia. Vapor explosion hazard (1). Flash point 42°F (2). | | Decomposes in presence of alkali to HCN gas (1). |
| **Bromobenzene (Phenylbromide)** | Irritating to eyes and mucous membranes (4). Initially causes CNS excitation, then CNS depression. Eye contact causes photophobia and a concentrated exposure can cause eye destruction. Skin contact causes irritation and sensitization and burns. Inhalation and skin exposure causes diaphoresis and tachypnea (1). | Flash point 124°F. Emits highly toxic fumes of halogen acid (1). | Practically insoluble in water (5). | Can react with oxidizing materials (4). |

| Chemical | Health Effects of Chemical | Effect of Heat | Water Reactivity | Comments |
|---|---|---|---|---|
| **N-Butylamine** | Vapors are irritating to the eyes, nose and throat and may produce pulmonary edema and HA (6). Exposure to excessive amounts causes erythema, N, V, faintness, coughing, chest pains, dizziness, depression, convulsions, narcosis and possible unconsciousness. The liquid in contact with skin causes severe burns and contact with eye causes severe damage and loss of vision (6). | Vapors form explosive mixtures with air (6). Containers may explode in fire. Thermal decomposition produces toxic gases such as oxides of nitrogen and CO (6). | | Can react with oxidizing materials (4). |
| **Cyclohexanone** | Skin contact causes dermatitis. Irritating to skin, eyes, mucous membranes. Causes liver and kidney damage (4), paresthesia, N, V, and hypothermia (1). | Flash point 93°F. Thermal oxidation causes CO (4). Explosive and combustible (6). | Slight water solubility (4). | Reacts with oxidizing materials (4). Attacks many plastics, rubbers, resins (6). |
| **Ethyl Acetate (Acetic Ether) (Ethyl Ester) (Ethyl Ethanoate)** | High concentrations cause CNS depression. Irritating to eyes, skin, mucous membranes and respiratory passages. Mildly narcotic. Can cause congestion of kidneys and liver (not reported in humans) (1). | Very flammable/ combustible. Flash point 24°F. Explosive (4). Fire may produce irritating or toxic fumes (1). | Slight water solubility (4). | |

| Chemical | Health Effects of Chemical | Effect of Heat | Water Reactivity | Comments |
|---|---|---|---|---|
| **Ethyl Alcohol** | Excessive inhalation of vapors is irritating to eyes and upper respiratory tract (6). Inhalation of vapors causes drowsiness, ataxia, stupor (6). Eye contact causes burning and stinging and skin contact has defatting action (6). | Flammable/combustible material. Container may explode in heat (1). Vapor explosion hazard (1). Flash point 55°F (6). | | The addition of alcohols to highly concentrated hydrogen peroxide forms powerful explosives that can be detonated by shock (2). Ethanol plus iodine and methanol and mercuric oxide produce an explosive reaction (2). Reacts with alkali metals to give $H_2$ (6). |
| **Ethyl Ether (Diethyl Ether) (Ether)** | Inhalation results in dizziness, giddiness, euphoria, CNS depression & unconsciousness (1). Prolonged exposure to high concentration can cause eye injury and cough and laryngeal spasms (1). Can cause liver and kidney damage (1). | Forms flammable mixtures with air. Flash point -49°F (2). In presence of air, unstable peroxides can form which may explode spontaneously or when heated (2). | Not soluble in water (2). Water can help prevent peroxide formation (6). | Explodes when mixed with chlorine gas (2). A drop of anhydrous perchloric acid in ether causes a violent explosion (2). |
| **Ethyl Malonate Diethylmalonate** | Low oral toxicity (4). | Flash point 200°F (4). | Poor water solubility (5). | Reacts with oxidizing materials (4). |
| **Hydrobromic Acid (Hydrogen Bromide)** | Highly irritating to eye, skin, and respiratory tract (4). Gas may cause burns (1). | When heated, emits highly toxic fumes (4). | Produces toxic and corrosive fumes when combined with water (4). | |
| **Hydrochloric Acid** | Causes irritation to the eyes, skin and respiratory tract (2). Causes dyspnea, chest pain, hypoxemia, pulmonary edema, vomiting and severe burns (1). | Not combustible (2). | Soluble in water (2). | Contact with common metals forms by $H_2$ which is explosive (2). |
| **Hydrogen Gas** | Itself is NT, but can cause asphyxiation by displacement of air (1). Liquid hydrogen can cause frostbite or burns (1). | Extremely flammable (1). Container may explode in heat of fire (1). Vapor explosion hazard. Fire produces irritating or poisonous gas (1). | | Finely divided platinum and some other metals will cause a mixture of hydrogen and oxygen to explode at ordinary temperatures (2). Also explosive with chlorine and bromine (2). |

| Chemical | Health Effects of Chemical | Effect of Heat | Water Reactivity | Comments |
|---|---|---|---|---|
| **Hydrogen Cyanide** | Can be absorbed through the skin. Extremely toxic. A few breaths can cause unconsciousness and death (2). Sx include N, V, palpitations, confusion, HA, dizziness, anxiety, flushing, tachycardia, tachypnea, stupor, apnea, seizures. This is followed by hypo-tension, bradycardia, and pulmonary edema and then death. (1). | Flammable/explosive (2). Vapor explosion hazard (1). Flash point 0°F. | Soluble in water (2). Releases HCN vapors (1). | Reacts with acetaldehyde and alkalies. Self reactive (1). |
| **Iodine** | Very irritating to mucous membranes, eyes, and skin, severity dependent on dura-tion of exposure and concentration of iodine (1). | Can produce toxic iodine vapors and iodide fumes (6). | | May react violently with acetaldehyde (2) and acetylene (6). Reacts with ammonium hydroxide to form iodides which are shock sensitive and explo-sive when dry (6). Alum-inum powder plus iodine will ignite spontaneously (2). Reacts violently with liquid chlorine (2). |
| **Iso-Octane (2, 2, 4-Trimethyl Pentane)** | Moderately toxic by oral and inhalation route. High doses cause narcosis (4), arrhyth-mias, V-tach, hypoxia, a-noxia, respiratory arrest, CNS depression of CNS excitation and seizures (1). | Flash point 10°F (4). Highly flammable (5). | Insoluble in water (5). | Reacts vigorously with reducing materials (4). |
| **Manganese Oxide (Manganese Dioxide)** | Inhalation of powder can cause irritation of lungs and pneumonia (1). Symptoms seen most often with chronic exposure (1). | Can increase the burning rate of other combustibles (6). Flammable (4) | Insoluble in water (5). | Powerful oxidizer (4). |

| Chemical | Health Effects of Chemical | Effect of Heat | Water Reactivity | Comments |
|---|---|---|---|---|
| **Methanol** | Effects are delayed for 18-24 hours. Causes CNS depression, anion gap metabolis acidosis, visual defects (1). Contact with skin causes dermatitis, erythema (6). Direct contact with eye causes irritation and pain and transient corneal opacity (6). | Flash point 52°F (1). Container may explode in heat of fire. Vapor explosion hazard (1). Thermal decomposition produces CO, $CO_2$, and possibly toxic formaldehyde (6). | | Explosive when exposed to oxide mixtures (1). Reacts violently with many products including chromic anhydride, iodine plus ethanol, mercuric oxide, and metallic aluminum (6). |
| **Morpholine** | Potent eye, skin, and respiratory irritant (2). Direct contact causes skin burns and blistering (5). Strongly alkaline (1). May cause kidney and liver damage (1). | Flammable. Moderate explosion hazard. Flash point 100°F (6). Decomposition yields $NO_2$, acetaldehyde, formal-dehyde, diethyleneglycol amines (1). | Soluble in water (2). | Concentrated solutions readily permeate the skin (6). |
| **Nitroethane** | Toxic by inhalation (2). Irritant to the respirator tract. Excessive inhalation causes HA, N, and narcosis (6). Prolonged or repeated skin contact causes defatting, and dermatitis (6). High concentrations may cause liver and kidney damage and methemoglobinemia (6). Irritating to eyes (5). | Vapors form explosive mixtures with air (2). Flash point 106°F (2). Products of decomposition are highly toxic-CO and nitrogen oxides (6). Can explode when exposed to extreme shock or evelated temperatures (6). | | Reacts with hydroxides (NaOH, KOH, $Ca(OH_2)$ to form salts that are explosive (2). Added sensitivity to heat may result from mixing with amines, strong alkalis and acids, and metal oxides (6). |
| **Petroleum Ether (Petroleum Spirits) (Petroleum Benzine)** | Causes irritation to respiratory tract (6) and HA, dizziness, N, inebriation and CNS depression (6). Contact with high vapor levels or with liquid irritates the eyes (6). Repeated or porlonged skin contact causes defatting or dermatitis (6). | May be ignited by heat. Container may explode in heat of fire (1). Vapor-air mixture explosion hazard (1). Fire produces irritating gas (1). Also produces CO and $CO_2$ (6). | | Reacts with oxidizing materials (1). |

| Chemical | Health Effects of Chemical | Effect of Heat | Water Reactivity | Comments |
|---|---|---|---|---|
| **Phenylacetic Acid (∝-Toluic Acid)** | Causes irritation or burns to eye and skin (1). | When heated to decomposition, emits toxic fumes (4). | | |
| **Phenylacetyl Chloride** | No information available. | | | |
| **Phenylmagnesium Bromide** | Causes photophobia, eye irritation, skin irritation and sensitization. May cause chemical burns (1). | Emits toxic fumes of bromides (4). | Produces heat when combined with water. Also produces toxic vapor (1). | Reacts vigorously with oxidizing materials (1). |
| **Phenylmagnesium Chloride** | Causes photophobia, eye irritation, skin irritation and sensitization. May cause chemical burns (1). | Usually dissovled in ether which is highly volatile and flammable (4). | Reacts rapidly with water and air to produce toxic flammable vapors with evolution of heat (5). Can ignite spontaneously (1). | Usually found as crystals dissolved in ether (4). |
| **Picric Acid** | An irritant to skin, eye, and respiratory tract (2). Contact with eyes causes conjunctivitis. Skin contact causes dermatitis, severe itching, skin eruptions, and yellow discoloration. Also causes nose irritation with nose bleeds, HA, vertigo, V, D, abdominal pain, jaundice, hepatitis, renal toxicity, weakness, fever, myalgia, intravascular hemolysis, seizures, coma and death (1). | Highly explosive (2). Flash point 302°F (4). Must be kept out of contact with metals (4). Emits highly toxic fumes (4). | Wet picric acid is much safer (2). | An oxidizing material. Contact with metals especially zinc, copper, and lead forms highly sensitive explosive compounds (2). Shock can cause explosions (1). |
| **Piperdine** | Moderately toxic via inhalation. Highlyt toxic via oral and dermal route (4). Causes skin burns and pulmonary irritation (1). A strong base (5). | Flash point 61°F (4). Flammable - releases highly toxic fumes of nitrogen oxides (4). | Miscible with water (5). | Reacts vigorously with oxidizing material (4). |

| Chemical | Health Effects of Chemical | Effect of Heat | Water Reactivity | Comments |
|---|---|---|---|---|
| **Potassium Carbonate (Potash)** | Irritant and caustic (5). Causes pulmonary burns, severe eye and mucous membrane irritation, and skin contact causes burns (1). | | Soluble in water. Aqueous solutions are alkaline (5). | A strong caustic (4). |
| **Potassium Cyanide** | Extremely toxic. Do not handle with bare hands (2). Causes N, V, palpitations, confusion, anxiety, flushing, tachycardia, tachypnea, HA, dizziness, hypoxia, apnea, seizures. This progresses to hypotension, bradycardia, pulmonary edema, and death (1). | Not combustible (2). Can liberate toxic vapors of HCN and nitrogen dioxide. Explodes when heated (1). | Can liberate very toxic HCN (2). | Interaction with acids releases highly flammable and deadly HCN gas (2). Has a faint odor of bitter almonds (2). |
| **Pyridine** | Eye, skin, and respiratory irritant (2). Excessive inhalation produces irritation of respiratory tract, asthmatic breathing, HA, dizziness, and CNS depression (6). Also causes liver and kidney damage (6). | Vapor forms explosive mixtures with air (2). Flash point 68°F. Thermal oxidative reaction produces toxic nitrogen containing products including oxides of nitrogen, and cyanide (6). | | Reacts exothermically with acids (6). |
| **Pyrrolidine** | Low to moderate toxicity via oral route (4). Irritant of eyes, mucous membranes and lungs (4). A strong base (5). | Flash point 265°F. Emits highly toxic fumes of nitrogen oxides (4). | Miscible in water (5). | Can react with oxidizing materials (4). |
| **Sodium Metal** | Solid metal causes severe skin and eye burns (2). Burning fumes are highly irritating to skin, eyes, and mucous membranes (2). Sx include conjunctivitis, rhino-rrhea, bronchitis, cough, dyspnea, sneezing, asthma, dermatitis, urticaria, lymph-ocytosis, eosinophilia (1). | Burns violently accom-panied by explosions (2). | Combined with water released $H_2$ with sufficient heat to cause ignition or explosion (2). | Ignites spontaneously in air or oxygen (2). |

| Chemical | Health Effects of Chemical | Effect of Heat | Water Reactivity | Comments |
|---|---|---|---|---|
| **Sodium Acetate** | Moderate oralltoxicity (4). Irritating to eyes, skin and respiratory tract (6). | Acrid fumes emitted when heated. Yields $CO_2$, CO, and acetic acid (6). | Very soluble in water (5). | |
| **Sodium Bisulfite** | Can cause anaphylaxis in sensitive asthmatics. Reaction consists of broncho-constriction, diaphoresis, flushing, urticaria, tachycardia, and hypotension (1). An irritant to skin and mucous membranes (4,5). | Releases sulfur dioxide (1). | Soluble in water. Aqueous solution is acidic (5). | In combination with mineral acids, sulfur dioxide is released (1). Incompatible with oxidizers (5). |
| **Sodium Cyanide** | Extremely toxic. Do not handle with bare hands (2). Causes N, V, palpitations, confusion, HA, dizziness, anxiety, flushing, tachycardia, tachypnea, stupor, apnea, seizures. This is followed by hypotension, bradycardia, pulmonary edema, and death (1). | Not combustible (2). Can explode in heat. Can release toxic vapors of HCN (1). | Will produce toxic and flammable vapors (4). | Contact with acids releases HCN (2). Reacts with nitrates and nitrites (1). |
| **Sodium Ethoxide (Caustic Alcohol)** | Probably an irritant to mucous membranes, eyes, and skin (1). | | Decomposes into sodium hydroxide and alcohol (5). | |
| **Sodium Hydroxide** | Severely hazardous. Can destroy tissue on contact. Corrosive to all tissue (5,2). Causes stridor, dyspnea, pulmonary edema, severe burns of eyes and skin (1). | Not combustible (2). | With acids and water, can generate enough heat to ignite combustible materials (5). | Contact with metals can generate $H_2$ gas (2). |

| Chemical | Health Effects of Chemical | Effect of Heat | Water Reactivity | Comments |
|---|---|---|---|---|
| **Sodium Metabisulfite** | Can cause anaphylaxis in sensitive asthmatics. Reaction consists of bronchoconstriction, diaphoresis, flushing, urticaria, tachycardia, and hypotension (1). | Releases sulfur dioxide (1). | Soluble in water. Aqueous solution is acidic (5). | In combination with mineral acids, sulfur dioxide is released (1). |
| **Sulfuric Acid** | Damaging to all human tissue with which it comes in contact (6). Severe eye injury may occur. Inhalation of mists can damage upper respiratory tract and the lungs (6). | Decomposition products are sulfur oxides (6). | Reacts violently with water with evolution of heat (2). | Reacts with organic materials with evelution of heat (2). Attacks many metals releasing $H_2$ (2). Can ignite or explode on contact with acetic acid, acetone and nitric acid, acetonitrile, alcohols and hydrogen peroxide, aldehydes, carbides, chlorates, ethylene glycol, p-nitrotoluene, perchlorates, etc. (6). |
| **Toluene (Methyl Benzene)** | Eye and respiratory tract irritant. Extreme inhalation exposure can cause respiratory paralysis (2). Narcotic in high concentrations (5). Inhalation exposure causes weakness, confusion, fatigue, lacrimation. This progresses to euphoria, HA, dizziness, N, muscular weakness, collapse, coma. Bronchial irritation, respiratory failure, cardiac sensitization, and renal toxicity can occur (1). | Flammable, explosive. Flash point 40°F (2). Container can explode in heat of fire (1). Can be ignited by heat and produces irritating and toxic fumes (1). | Not soluble in water (2). | Reacts with oxidizers (1). |

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| **P-Toluenesulfonic Acid Monohydrate**<br><br>**(P-Toluene Sulfonate)** | Highly irritating to eyes, skin, mucous membranes and repiratory tract. Contact with eyes causes severe pain, swelling and corneal erosions. Inhalation causes dyspnea, chest pain, pulmonary edema, hypoxemia. Skin contact causes irritation and burns (1). | Emits highly toxic fumes of sulfur oxides (4). | Sparingly soluble in water (5). | Contact with acids releases toxic fumes (4). |

## NOTES


(1) Poisindex, Volume 53, Exp 8/31/87; and Volume 54, Exp 11/30/87.

(2) Fire Protection Guide on Hazardous Materials, (6th Edition). National Fire Protection Association. Boston, Massachusetts: 1975.

(3) Clinical Toxicology of Commercial Products, (Fifth Edition). Baltimore, Maryland: Williams and Wilfins, 1984.

(4) N. Irving Sax. Dangerous Properties of Industrial Materials, (5th Edition). New York: Van Nostrand Reinhold Co., 1979.

(5) Windholz and Budavair. Merck Index, (Tenth Edition). Rahway, New Jersey: Merck and Co., Inc., 1983.

(6) Material Safety Data Sheets Collection, Schenectady, New York: Genium Publishing Corporation; October, 1986.

# GLOSSARY

| ABBREVIATION | DEFINITION |
|---|---|
| HA | Headache |
| N | Nausea |
| V | Vomiting |
| CNS | Central Nervous System |
| Sx | Symptoms |
| NT | Non-Toxic |
| D | Diarrhea |
| SOB | Shortness of Breath |
| V-tach | Ventricular Tachycardia |

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# POISON CONTROL CENTERS IN CALIFORNIA

January, 1991

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1-800-346-5922 - Public
(209) 445-1222 - Local
(209) 442-6000 ext. 5759-Linda Pope, B.S., Health Educator
Counties Served: Merced, Mariposa, Madera, Fresno, Kings, Tulare, and Kern

**Los Angeles County Medical Association**
**Regional Poison Control Center**
1925 Wilshire Boulevard
Los Angeles, CA 90057-1465
Michael J. Wieland, R.Ph., Director
Marc J. Bayer, M.D., Medical Director
1-800-777-6476 - Public
1-800-825-2722 - Doctors & Hospitals
(213) 484-5151 - Public
(213) 664-2121 - Doctors and Hospitals only
(213) 413-5255 - Fax
Counties Served: Los Angeles, Santa Barbara, and Ventura

**San Francisco Bay Area Regional Poison Control Center**
**San Francisco General Hospital**
1001 Potrero Avenue
San Francisco, CA 94110
Kent R. Olson, M.D., Medical Director
Thomas E. Kearney, Pharm.D., Director
1-800-523-2222 - Public
(415) 476-6600 - Local
(415) 821-8554 - Health Educator
(415) 821-8513 - Fax
Counties Served: Del Norte, Alameda, Contra Costa, Humboldt, Marin, Mendocino, Napa, San Francisco, San Mateo, and Sonoma

**Santa Clara Valley Medical Center**
**Regional Poison Control Center**
751 South Bascom Avenue
San Jose, CA 95128
Gary Everson, Pharm.D., Director
Michael Collins, M.D., Medical Director
1-800-662-9886 - Public
(408) 299-5112 - Local
(408) 299-8175 - Administration
(408) 299-5290 - Health Educator
(408) 386-2344 - Fax
Counties Served: Santa Clara, Santa Cruz, San Benito, Monterey, and San Luis Obispo

**University of California Davis Medical Center**
**Regional Poison Control Center**
2315 Stockton Boulevard
Sacramento, CA 95817
Judith Alsop, Pharm.D., Director
Timothy E. Albertson, M.D., Ph.D., Medical Director
Steven Tharratt, M.D., Associate Medical Director
1-800-342-9293 - Public
(916) 734-3692 - Local
(916) 734-3414 - Administration
(916) 734-3414 - Health Educator
(916) 734-3564 - Medical Directors
(916) 734-7796 - Fax
Counties Served: Butte, Siskiyou, Modoc, Trinity, Shasta, Lassen, Tehama, Plumas, Glenn, Sierra, Yuba, Lake, Colusa, Sutter, Nevada, Yolo, Placer, Solano, Sacramento, El Dorado, Amador, Alpine, Calaveras, San Joaquin, Stanislaus, and Tuolumne

**University of California Irvine Medical Center**
**Regional Poison Control Center**
101 The City Drive, Trailer 1, Route 78
Orange, CA 92668
Richard Thomas, Pharm.D., Director
Philip Edelman, M.D., Medical Director
1-800-544-4404 - Public
(714) 634-5988 - Local
(714) 634-5003 - Administration
(714) 634-6665 - Hazardous Materials
(714) 937-7688 - Public Health Education
(714) 634-5730 - Health Professional Education
(714) 937-7858 - Fax
Counties Served: Orange, San Bernardino, Riverside, Inyo, and Mono

**University of California San Diego Medical Center**
**San Diego Regional Poison Center**
225 Dickinson Street, H-925
San Diego, CA 92103-1990
Anthony Manoguerra, Pharm.D., Director
Irving Jacoby, M.D., Medical Director
1-800-876-4766 - Public
(619) 543-6000 - Local
(619) 543-3666 - Health Educator
(619) 692-1867 - Fax
Counties Served: San Diego and Imperial