西亚试剂® Xiya Reagent 说明书

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化 学 品 安 全 技 术 说 明 书

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MSDS标题

HYDROXYUREA MSDS报告

产品标题

氨甲酰羟基胺;羟基尿素;N-羟基脲;氨基甲酰基羟胺

CAS号

127-07-1

化学品及企业标识

PRODUCT NAME

HYDROXYUREA

NFPA

Flammability	1
Toxicity	2
Body Contact	0
Reactivity	2
Chronic	3

SCALE: Min/Nil=0 Low=1 Moderate=2 High=3 Extreme=4

PRODUCT USE

Antineoplastic agent which may inhibit DNA synthesis. It is S- phase specific and has been used to treat chronic myeloid leukaemia, malignant melanoma and inoperable tumours of the ovary. Given by mouth.

SYNONYMS

C-H4-N2-O2, H2NCONHOH, "carbamohydroxamic acid", "carbamohydroximic acid", "carbamohydroxyamic acid", "carbamoyl oxime", N-carbamoylhydroxylamine, N-carbamoylhydroxylamine, "carbamyl hydroxamate", hydroxycarbamide, hydroxycarbamine, "hydroxylamine, N-(aminocarbonyl)-", "hydroxylamine, N-(aminocarbonyl)-", "hydroxylamine, N-carbamoyl-", "hydroxylamine, N-carbamoyl-", hydroxylurea, N-hydroxyurea, N-hydroxyurea, "hydroxyurea (D4)", Biosupressin, Hidrix, HU, Hydrea, Hydreia, Hydura, Hydurea, Litaler, Litalir, NCI-C04831, Onco-Carbide, Oxyurea, SK-22591, SQ-1089, "cytoplasmic/ antineoplastic"

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW

RISK

May form explosive peroxides.
May cause heritable genetic damage.
May impair fertility.
May cause harm to the unborn child.
May cause harm to breastfed babies.
Harmful: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Accidental ingestion of the material may be damaging to the health of the individual. The killing action of antineoplastic drugs used for cancer chemotherapy is not selective for cancerous cells alone but affect all dividing cells. Acute side effects include loss of appetite, nausea and vomiting, allergic reaction (skin rash, itch, redness, low blood pressure, unwellness and anaphylactic shock) and local irritation. Gout and renal failure can occur. Hydroxylamine relaxes the smooth muscle of blood vessels, causing low blood pressure, increased heart rate, circulatory insufficiency and cardiovascular collapse. Large doses produce destruction of blood cells. Bleeding times may be prolonged as platelet clumping is inhibited and there can be purple skin blotches.

EYE

Although the material is not thought to be an irritant, direct contact with the eye may cause transient discomfort characterized by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. The material may produce foreign body irritation in certain

individuals.

SKIN

The material is not thought to produce adverse health effects or skin irritation following contact (as classified using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting. Open cuts, abraded or irritated skin should not be exposed to this material. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified using animal models). Nevertheless, adverse effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

CHRONIC HEALTH EFFECTS

Harmful: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin. Harmful: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin. This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. This has been demonstrated via both short- and long-term experimentation. Ample evidence exists from experimentation that reduced human fertility is directly caused by exposure to the material. Ample evidence exists, from results in experimentation, that developmental disorders are directly caused by human exposure to the material. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. There is some evidence that inhaling this product is more likely to cause a sensitization reaction in some persons compared to the general population. There are generally two types of oximes: ketoximes derived from ketones and aldoximes derived form aldehydes. Several ketoximes (p-quinone dioxime, acetoxime and methyl ethyl ketoxime) have elicited carcinogenic effects on chronic exposure. Few substantive studies have been performed with aldoximes. The fact that aldoximes can be metabolised to cyanide via a pathway not applicable to ketoximes distinguishes the type of response which might be anticipated. Dehydration of aldoximes to produce nitriles has been shown to be catalysed in vitro by cytochrome P450; dehydration of ketoximes produces amides, rather than nitriles, via a Beckmann rearrangement but this apparently has no

analogue in biological systems. The mechanism and toxicity of oximes to erythrocytes is recognised and might be attributed to hydroxylamine, a product of hydrolysis. Hydroxylamine produces haematologic effects such as methaemoglobinaemia and splenomegaly in mice similar to those observed after exposure to oximes such as butanal oxime. Studies demonstrated the formation of haeme-associated free radicals in erythrocytes exposed to hydroxylamine, leading ultimately to peroxidation of membrane lipids. Lipid peroxidation in cellular membranes may produce several morphological alterations resulting, for example, in membrane aggregation, deformation or breakage. This may result in the release of hydrolytic enzymes which in turn may degrade functional macromolecules and cause secondary damage. In addition membrane-bound enzyme systems may be disrupted. Levels of hydroxylamine produced as a result of hydrolysis are thought to be too low to produce another sign of hydroxylamine toxicity, namely the formation of Heinz bodies Oximes are not easily oxidised at near neutral conditions and hydrolysis by liver microsomes or S9 is hypothesised (however this conclusion was based on the formation of a ketone rather than hydroxylamine). Another possibility is that oximes are oxidatively metabolised to yield a ketone or aldehyde and some yet to be determined nitrogen- containing species. Cytochrome P450 appears to provide a source of superoxide and hydrogen peroxide which catalyses oxidation in the presence of iron. At least part of the nitrogen in the oxime is converted to nitric oxide which complexes with haeme to give a nitrosylhaemoglobin complex. Anti-cancer drugs used for chemotherapy can depress the bone marrow with reduction in the number of white blood cells and platelets and bleeding. Susceptibility to infections and bleeding is increased, which can be life-threatening. Digestive system effects may include inflammation of the mouth cavity, mouth ulcers, esophagus inflammation, abdominal pain and bleeds, diarrhea, bowel ulcers and perforation. Reversible hair loss can result and wound healing may be delayed. Long-term effects on the gonads may cause periods to stop and inhibit sperm production. Most anti-cancer drugs can potentially cause mutations and birth defects, and coupled with the effects of the suppression of the immune system, may also cause cancer. Repeated exposure to hydroxylamine and derivatives may result in respiratory sensitization with asthma-like symptoms. Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).