

## 化 学 品 安 全 技 术 说 明 书

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### MSDS标题

VANADIUM PENTOXIDE, RESPIRABLE DUST & FUME MSDS报告

### 产品标题

无水钒酸;氧化钒

### CAS号

1314-62-1

### 化学品及企业标识

## PRODUCT NAME

VANADIUM PENTOXIDE, RESPIRABLE DUST & FUME

## NFPA

|  |   |
|--|---|
| Flammability                                       | 0 |
| Toxicity   | 2 |
| Body Contact                                       | 2 |
| Reactivity   | 0 |
| Chronic  | 2 |
| SCALE: Min/Nil=0 Low=1 Moderate=2 High=3 Extreme=4 |   |

## PRODUCT USE

Fumes from welding or smelting vanadium or ferrovanadium alloys.

## SYNONYMS

V2O5, "vanadic anhydride", "vanadium oxide", "vanadium pentaoxide", catalyst, "airborne vanadium fume"

## CANADIAN WHMIS SYMBOLS

## EMERGENCY OVERVIEW

### RISK

Harmful if swallowed.

Irritating to respiratory system.

Possible risk of harm to the unborn child.

Possible risk of irreversible effects.

Toxic: danger of serious damage to health by prolonged exposure through inhalation.

Toxic to aquatic organisms, may cause long- term adverse effects in the aquatic environment.

## POTENTIAL HEALTH EFFECTS

### ACUTE HEALTH EFFECTS

#### SWALLOWED

Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. Strong evidence exists that the substance may cause irreversible but non-lethal mutagenic effects following a single exposure. Overexposure is unlikely in this form. Vanadium poisoning causes immediate distress with nose bleeds, severe diarrhea, paralysis of the legs, breathing difficulties, convulsions and death. The liver and kidneys may degenerate, and sometimes there can be bleeding from the lung and adrenal cortex. Vanadium is about as toxic as arsenic.

#### EYE

There is some evidence to suggest that this material can cause eye irritation and damage in some persons. Irritation of the eyes may produce a heavy secretion of tears (lachrymation).

#### SKIN

Skin contact is not thought to produce harmful health effects (as classified using animal models). Systemic harm, however, has been identified following exposure of animals by at least one other route and the material

may still produce health damage following entry through wounds, lesions or abrasions. 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 can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled. Effects on lungs are significantly enhanced in the presence of respirable particles. The inhalation of vanadium dust can cause irritation of the respiratory tract and eyes, with cough, wheezing, bronchitis, phlegm with blood stains, and blackening of the tongue. Internal symptoms may include loss of appetite, anemia, nausea, headache, sleep difficulties, nervousness, dizziness, kidney damage, tremor, psychic disturbances and blindness.

## **CHRONIC HEALTH EFFECTS**

Toxic: danger of serious damage to health by prolonged exposure through inhalation. Toxic: danger of serious damage to health by prolonged exposure through inhalation. 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. Results in experiments suggest that this material may cause disorders in the development of the embryo or fetus, even when no signs of poisoning show in the mother. Exposure to the material may result in a possible risk of irreversible effects. The material may produce mutagenic effects in man. This concern is raised, generally, on the basis of appropriate studies using mammalian somatic cells in vivo. Such findings are often supported by positive results from in vitro mutagenicity studies. 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. Repeated exposures, in an occupational setting, to high levels of fine- divided dusts may produce a condition known as pneumoconiosis which is the lodgement of any inhaled dusts in the lung irrespective of the effect. This is particularly true when a significant number of particles less than 0.5 microns (1/50,000 inch), are present. Lung shadows are seen in the X-ray. Symptoms of pneumoconiosis may include a progressive dry cough, shortness of breath on exertion, increased chest expansion, weakness and weight loss. As the disease progresses the cough produces a stringy mucous, vital capacity decreases further and shortness of breath becomes more severe. Pneumoconiosis is the accumulation of dusts in the lungs and the tissue reaction in its presence.

It is further classified as being of noncollagenous or collagenous types. Noncollagenous pneumoconiosis, the benign form, is identified by minimal stromal reaction, consists mainly of reticulin fibres, an intact alveolar architecture and is potentially reversible. Vanadium is an essential trace element. Poisoning can cause stomach upset, emphysema and wheezing.

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