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ACUTE TOXICOLOGIC PROPERTIES AND INDUSTRIAL HANDLING HAZARDS OF VINYLTRIAACETOXYSILANE		
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Date: June 20, 1973

**ACUTE TOXICOLOGIC PROPERTIES AND INDUSTRIAL HANDLING HAZARDS OF VINYLTRIAACETOXYSILANE**

Reported By Charles L. Groh 6-25-73  
Approved By E. J. Hobbs 6-25-73

I. Purpose

A sample of vinyltriacetoxysilane was received by the Toxicology Department for evaluation of acute toxicologic properties and industrial handling hazards.

## II. Test Material

Vinyltriacetoxysilane, Lot 060117

OAc

Vi-Si-OAc

OAc

## III. Results

### Acute Oral Toxicity - Rats

The undiluted test material has a low acute oral toxicity. There should be no problem from ingestion incidental to industrial handling. If large quantities are ingested accidentally or willfully, some injury may occur, the likelihood of serious injury is remote.

### Eye Contact - Rabbit

This material has a very serious effect upon the eye. Direct contact is very painful and will probably result in severe tissue destruction leading to permanent impairment of vision. Special and particular precautions must be taken to prevent contact with the eyes. Chemical workers goggles should provide adequate eye protection. If the eyes are contaminated they should be washed immediately with copious amounts of water and medical attention obtained without delay.

### Skin Irritation - Rabbits

Undiluted  $\text{ViSi(OAc)}_3$  has a severe effect on the skin especially when confined under an article of clothing. Special precautions must be taken to prevent contact with the skin. If skin contact should occur with this material, all contaminated clothing and/or shoes should be removed and the affected skin area flushed thoroughly with water.

Protective clothing must be worn where likelihood of contact exists.

### Acute Vapor Inhalation - Rats

Range finding inhalation studies conducted on rats indicate a slight hazard may exist from exposure to high concentrations of this material for a prolonged (hours) period of time. Keeping in mind the fact  $\text{ViSi(OAc)}_3$  hydrolyses in the presence of moisture to acetic acid fumes which are

irritating to eyes and mucous membranes. Adequate ventilation should be provided and atmospheric monitoring employed whenever the possibility of high concentrations of  $VSi(OAc)_3$  may exist.

IV. Presentation of Data

Acute Oral Toxicity - Rats

<u>Material</u>	<u>Dose</u>	<u>No. Died/ No. Dosed</u>	<u>Remarks</u>
Undiluted $VSi(OAc)_3$	10 ml/kg	2/2	Dead within 30 minutes.
	1 ml/kg	1/4	Immediate depression.
	0.1 ml/kg	1/4	None
	0.01 ml/kg	0/2	None

Eye Contact - Rabbit

<u>Material</u>	<u>Treatment of Eye</u>	<u>Response</u>
Undiluted $VSi(OAc)_3$	Washed and Unwashed	Very severe pain upon instillation of test material. Very severe conjunctivitis and corneal injury at 1 hour, still evident after 48 hours. Severe eye injury necessitated sacrificing animal at 48 hours. Recovery very doubtful.

Skin Irritation - Rabbits

<u>Material</u>	<u>Condition of Skin</u>	<u>No. of Applications</u>	<u>Length of Contact</u>	<u>Remarks</u>
Undiluted $VSi(OAc)_3$	Intact (Covered with cotton patch)	1	4 Hours	Slight hyperemia, edema, moderate to severe necrosis.
	Intact (Covered with cotton patch)	1	2 Hours	Essentially same as above.

Skin Irritation - Rabbits (continued)

<u>Material</u>	<u>Condition of Skin</u>	<u>No. of Applications</u>	<u>Length of Contact</u>	<u>Remarks</u>
Undiluted ViSi(OAc) <sub>3</sub>	Intact (Covered with cotton patch)	1	1 Hour	Slight hyperemia.
	Intact (Covered with cotton patch)	1	1/2 Hour	Same as above.
	Intact (Not covered)	1	4 Hours	Slight hyperemia.
	Intact (Not Covered)	1	2 Hours	Same as above.
	Intact (Not Covered)	1	1 Hour	Same as above.
	Intact (Not Covered)	1	1/2 Hour	Same as above.

Acute Vapor Inhalation - Rats

<u>Material</u>	<u>Length of Exposure</u>	<u>Concentration of Test Atmos.</u>	<u>No. Died/ No. Tested</u>	<u>Remarks</u>
ViSi(OAc) <sub>3</sub>	4 Hours	1200 ppm	0/5	Within 2 hours animals have moderate depression, marked lacrymation, labored breathing-gasping. At end of exposure, (in addition to above observation) corneas are opaque and oral/nasal discharges were noted. At conclusion of exposure, 1 animal was necropsied and hemorrhagic thyroid gland observed. This concentration (1200 ppm) is essentially saturated.

(1) As measured by I.R.