

TOXICOLOGICAL DATA ON TFI Product Testing Program Results - Urea 46-0-0 :^
INGREDIENTS

As formulated above:

Acute oral toxicity: 14,300 mg/kg rat; 11,500 mg/kg mouse; 510 mg/kg cattle

Chronic oral toxicity, NOAEL: 6,750 mg/kg mouse; 2,250 mg/kg rat

Ecotoxicity:

Acute toxicity to fish, Barillius barna, LC₅₀, 96hr: >9,100 mg/LAcute toxicity to invertebrates, Daphnia, EC₅₀ (24hr) >10,000 mg/L

Acute toxicity to birds, pigeon, LDLo = 16,000 mg/kg subcutaneous

Toxicity to algae, Scenedesmus quadricauda, cell multiplication inhibition, TT(192 hr) > 10,000 mg/L

Section III. Hazards Identification.**POTENTIAL ACUTE HEALTH EFFECTS**

Not considered to be toxic for humans under normal conditions of use. However, in keeping with good industrial hygiene practises, exposure to any chemical should be kept to a minimum. This product may cause irritation to the eyes and skin due to mechanical action.

POTENTIAL CHRONIC HEALTH EFFECTS**CARCINOGENIC EFFECTS:** NONE by ACGIH, EPA, IARC, OSHA.**MUTAGENIC EFFECTS:** NONE by ACGIH, EPA, IARC, OSHA.**TERATOGENIC EFFECTS:** NONE by ACGIH, EPA, IARC, OSHA.

There is no known effect from chronic exposure to this product. Urea is approved as a food and cosmetic additive, is an ingredient in clinical preparations, and is a normal human metabolite found in urine.

Section IV. First Aid Measures**EYE CONTACT**

May cause eye irritation by mechanical action. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Obtain medical attention if irritation persists.

MINOR SKIN CONTACT

May cause skin irritation due to drying (salt effect). Wash contaminated skin with soap and water. Cover dry or irritated skin with a good quality skin lotion. If irritation persists, seek medical attention.

EXTENSIVE SKIN CONTACT

No additional information.

MINOR INHALATION

Repeated or prolonged inhalation of dust may lead to respiratory irritation. Allow the person to rest in a well ventilated area. Obtain medical attention if irritation persists.

SEVERE INHALATION

No additional information.

SLIGHT INGESTION

Do not induce vomiting. Low toxicity. May cause digestive tract irritation, with accompanying nausea, vomiting and diarrhea. If spontaneous vomiting does occur, lower the head so that the vomit will not reenter the mouth and throat.

If tolerated, give no more than 1 cup of milk or water for adults or 1/2 cup for children to rinse the mouth and throat, dilute the stomach contents, and minimize irritation. Obtain medical attention if irritation persists.

EXTENSIVE INGESTION

No additional information.

Section V. Fire and Explosion Data**THE PRODUCT IS**

Non-flammable.

AUTO-IGNITION TEMPERATURE

Not applicable.

FLASH POINT

Not applicable.

FLAMMABILITY LIMITS

Not applicable.

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PRODUCTS OF COMBUSTION	Material will not burn. Undergoes thermal decomposition at elevated temperatures to produce solid cyanuric acid and release toxic and combustible gases (ammonia, carbon dioxide, and oxides of nitrogen).
FIRE HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES	Not applicable.
EXPLOSION HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES	May be explosive on contact with halogens such as chlorine. Non-explosive from open flames and sparks, shocks, heat, oxidizing materials, combustible materials, organic materials, metals, acids, alkalis, or moisture.
FIRE FIGHTING MEDIA AND INSTRUCTIONS	Non-flammable. Material will not burn. Undergoes thermal decomposition at elevated temperatures to release toxic and combustible gases (ammonia, carbon dioxide, and oxides of nitrogen). If fumes or gases are present, fire fighters should wear self-contained breathing apparatus. Use extinguishing media suitable for surrounding materials.
SPECIAL REMARKS ON FIRE HAZARDS	Flammable/toxic gases will form at elevated temperatures by thermal decomposition. When exposed to heat, ammonia is released.
SPECIAL REMARKS ON EXPLOSION HAZARDS	May be explosive when mixed with hypochlorites due to the formation of nitrogen trichloride which explodes spontaneously in air.

Section VI. Accidental Release Measures

SMALL SPILL	Use appropriate tools to put the spilled solid in a suitable container for intended use or disposal.
LARGE SPILL	Prevent additional discharge of material, if possible to do so without hazard. Prevent spills from entering sewers, watercourses, wells, etc. Product will promote algae growth which may degrade water quality and taste. Notify downstream water users. Recover and place material in suitable containers for recycle, reuse, or disposal.

Section VII. Handling and Storage

PRECAUTIONS	If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Keep out of reach of children.
STORAGE	Store in a dry, cool and well ventilated area. Keep away from incompatible materials such as reducing agents. Do not blend or store in contact with ammonium nitrate. Dry urea and dry ammonium nitrate will react together to produce a slurry.

Section VIII. Exposure Controls/Personal Protection

ENGINEERING CONTROLS	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, use ventilation to keep exposure to airborne contaminants below the exposure limit.
PERSONAL PROTECTION	<p>The selection of personal protective equipment varies, depending upon conditions of use. Under well controlled conditions where contact with the substance is limited and exposures are below the occupational exposure limit, normal work clothing may suffice. Where skin and eye contact may occur as a result of brief periodic exposures, wear long sleeved clothing or coveralls and safety glasses with side shields.</p> <p>Wear appropriate respirator when ventilation is inadequate. A filtering facepiece dust mask is adequate for most applications. A NIOSH approved full facepiece or half mask dust respirator with N-100 or P-100 filters should be used under conditions where airborne concentrations may exceed occupational exposure limits. For U.S facilities, a respiratory protection program that meets OSHA 29 CFR 1910.134 requirements must be followed whenever workplace conditions warrant a respirator's use.</p>
PERSONAL PROTECTION IN CASE OF LARGE RELEASE	No additional recommendations.
EXPOSURE LIMITS	<p>AIHA Workplace Environmental Exposure Limits: 10 mg/m³ TWA for Urea as inhalable dust. OSHA PEL: 15 mg/m³ for Particulates Not Otherwise Regulated.</p> <p>Federal, State or Provincial exposure limits may vary by jurisdiction. Consult local authorities for acceptable exposure limits in your area.</p>