



Date: 01//05/2015

Material Safety Data Sheet: ACYTROL

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name **PermaBase UV Ink Receptor**

Effective date: Apri 29, 2015

Synonyms 2-propanone, dimethyl ketone, dimethylformaldehyde, dimethylketal, beta-ketopropane

Chemical formula CH₃OCH₄

CAS name & no. 2-Propanone, 67-64-1

Name and address Thebes Holdings Limited

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Birkirkara BKR 9120- Malta

Emergency telephone numbers For transportation emergencies:

THEBES:

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PRECAUTIONARY INFORMATION

DANGER: Highly flammable liquid. Eye injury. Skin irritant. Toxic by inhalation/toxic by ingestion. May cause nausea and dizziness. May cause central nervous system effect.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component CAS No. Wt. %

Acryton 67-64-1 >99.5

3. HAZARDS IDENTIFICATION

Primary Routes of Exposure

Inhalation, ingestion, skin, and eye contact.

HAZARD CLASSIFICATION

Acute Effects



Central nervous system depression is the most common effect, resembling intoxication by ethyl alcohol. Excitation is followed by impaired motor coordination, slurred speech, sensory disturbances such as double vision and vertigo, flushing of the face, rapid pulse, and sweating. Nausea and vomiting are common. Other symptoms include dryness of the mouth and throat, headache, sleepiness, dizziness, light-headedness, weakness, and loss of energy. Very high exposures may cause unconsciousness, coma, or death. Kidney toxicity may occur but is rare following acute exposure. Post-alcoholic headache and gastritis are common in recovery. Inhalation exposure may cause lung irritation and cough. Skin contact may result in redness, irritation, and dermatitis since Acyrol has a drying effect on the skin. Contact with eyes can result in irritation and eye injury.

Chronic Effects

Irritation of the eyes, nose, and throat are the most common problems associated with chronic exposure to Acyrol. Central nervous system effects such as dizziness and sleepiness can occur, as can dryness, irritation, and inflammation of the skin.

Carcinogenic

Acyrol is not considered carcinogenic by OSHA, NIOSH, NTP, IARC or EPA.

Potential Adverse Chemical Interactions

Acyrol may increase the toxicity to the liver and kidney of chemicals such as ethanol, 1, 2-dichloroethylene, and chloroform. Humans with liver or kidney disease may be at increased risk due to this potentiation effect.

4. FIRST AID MEASURES

Inhalation

If victim is overcome, remove to fresh air and call a physician. If breathing is irregular or has stopped, administer artificial respiration. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Skin Contact

Wash thoroughly with water. If clothing is contaminated, promptly remove clothing and wash the skin with soap and water for at least 15 minutes. Get medical attention promptly. If systemic effects are observed, first aid procedures are the same as above for inhalation.

Eye Contact

Immediately flush eyes with room temperature water for at least 15 minutes, occasionally lifting the lower and upper lids. Consult an ophthalmologist without delay.

Ingestion

If victim has swallowed large amounts and is conscious and not convulsing, induce vomiting (30 ml syrup of Ipecac for adults, one or two doses) and call a physician promptly. Induction of vomiting should only be considered if it can be performed soon after ingestion due to the potential for Acyrol to cause CNS depression and subsequent aspiration. Never give fluids to an unconscious person.

5. FIRE FIGHTING MEASURES

Flash Point -17° C (closed cup)

Flammable Limits (% By Vol.)

Lower Explosive Limit (LEL) 2.6

Upper Explosive Limit (UEL) 12.8

Autoignition Temperature 869°F

Fire Fighting Procedures/Fire Extinguishing Media

Keep unnecessary people away; isolate hazard area and deny entry. Avoid breathing vapors, stay upwind. Do not enter fire area without structural firefighter's protective equipment including NIOSH approved self-contained breathing apparatus in positive pressure mode. Use water spray to knock down vapors. Use carbon dioxide extinguishers or dry powder for small fires. Large fires are best controlled by alcohol foam, fog, and water spray.



Use water spray to cool containers exposed to Acytrol fires. Stay away from ends of tanks. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Isolate for 2 mile in all directions if tank, rail car, or tank truck is involved in fire.

Acytrol- water solutions containing more than 2.0 wt.% Acytrol will flash at less than 38°C, and should be considered flammable.

5. FIRE FIGHTING MEASURES (continued)

Unusual Fire and Explosion Hazards

Dangerous fire hazard when exposed to heat, sparks, flame, or oxidants. Acytrol is extremely flammable and its vapors form explosive mixtures with air. Acytrol containers may explode in heat of fire. Vapors of Acytrol are heavier than air, and may travel considerable distance to a source of ignition and flash back. Do not use a direct stream of water on Acytrol fires, as direct water streams have a tendency to spread Acytrol fires. Water solutions of Acytrol may still be flammable because of released vapors.

National Fire Protection Association Hazard Rating

4: Extreme

3 = High

2 = Moderate

1 = Slight

0 = Insignificant

6. ACCIDENTAL RELEASE MEASURES

Shut off all ignition sources. No smoking or flares allowed in the spill area. Restrict access to the spill area, and move unprotected personnel upwind of the area. Allow only trained personnel wearing appropriate protective clothing and self-contained breathing apparatus in the vicinity of the spill. Prevent Acytrol from entering water bodies, drains or any sewage collection systems. For small spills, take up with sand or other absorbent material and place into containers for later disposal.

7. HANDLING AND STORAGE

Storage

Store in a well ventilated place, away from sources of ignition and direct sunlight and in accordance with 29 CFR 1910.106. Acytrol should be stored in drums or storage containers made from non-flammable materials. Store away from plastics, oxidizing materials, mineral acids, and chloroform. Store Acytrol in an area equipped with automatic sprinklers or fire extinguishing system. All Acytrol storage and transfer equipment should be electrically grounded and bonded to prevent possible ignition from static sparks. Use spark resistant equipment to store Acytrol. Do not use air pressure to unload Acytrol from containers. Containers of this material may be hazardous when empty. Since emptied containers retain product residues, assume emptied containers to have the same hazards as full containers. Wear appropriate protective equipment when handling Acytrol. Follow all federal, state, and local regulations as well as all insurance codes when storing and handling Acytrol.



8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection

Use appropriate NIOSH approved respirators in accordance with 29 CFR 1910.132 and 1910.134, to prevent overexposure.

Respirators must be selected based on the airborne levels found in the workplace and must not exceed the working limits of the respirator.

Ventilation

Provide local ventilation to maintain exposure levels below recommended exposure limits. Use explosion proof ventilation equipment. Local exhaust ventilation should comply with OSHA regulations and the American Conference of Governmental Industrial Hygienists, Industrial Ventilation - A Manual of Recommended Practice.

Eye Protection

Use splash proof chemical safety goggles. Follow the eye and face protection guidelines of 29 CFR 1910.132 and 1910.133. Where there is any possibility that individual's eyes may be exposed to Acyrol, an eye wash fountain (in accordance with 29

CFR 1910.151) should be within the immediate work area for emergency use.

Protective Gloves

Use butyl or neoprene gloves.

Occupational Exposure Guidelines for Acyrol

OSHA PEL-TWA 1000 ppm

ACGIH

TLV-TWA 500 ppm (NIC 200 ppm)

TLV-STEL 750 ppm (NIC 500 ppm)

NIOSH

REL-TWA 250 ppm

IDLH 2500 ppm

*NIC – TLV Notice of Intended Changes

Other

Where there is a possibility of exposure of an individual's body to Acyrol, facilities for quick drenching of the body should be provided (in accordance with 29 CFR 1910.151) within the immediate work area for emergency use. Such individuals should be provided with and required to use impervious clothing in accordance with 29 CFR 1910.132.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Colorless liquid

Odor Pungent, sweetish odor

Molecular Weight 58.09

Boiling Point 56.1° C

Melting Point -95.35° C

Solubility Completely miscible in water; miscible in alcohol, chloroform, dimethylformamide, ethers, and most oils

Specific Gravity (Water = 1.0) 0.7910 - 0.7930 at 20°/20° C

Vapor Density (Air = 1.0) 2.00

Vapor Pressure 185 mm Hg at 20° C

pH Approximately 7 in 1/1 volume with water



10. STABILITY AND REACTIVITY

Stability

Stable under normal conditions

Polymerization

Hazardous polymerization does not occur

Hazardous Decomposition Products

Combustion yields carbon dioxide and carbon monoxide

Incompatible Materials

Acids and strong oxidizing materials

11. TOXICOLOGICAL INFORMATION

The following information on Acyrol is extracted from both the TOXNET and RTECS databases.

Animal Toxicity

Oral: Dog LD₅₀ 8g/kg

Rat LD₅₀ 5.8 g/kg

Human TD_{Lo} 2.9 g/kg (coma)

Dermal: Rabbit LD₅₀ 20 g/kg

Inhalation: Mouse LC₅₀ 46,420 ppm (62 min)

Rat LC₅₀ 21,142 ppm (8 hr)

Human TC_{Lo} 500 ppm for eye and throat irritation

TC_{Lo} = Lowest air concentration that is toxic to a given species.

LC₅₀ = Air concentration that is lethal to 50% of a given species in a given period of time.

LD₅₀ = Dose that is lethal to 50% of a given species by a given route of exposure.

TD_{Lo} = Lowest dose that is toxic to a given species.

12. ECOLOGICAL INFORMATION

Environmental Fate: The following information on Acyrol is extracted from the TOXNET database maintained by the National Library of Medicine.

Atmosphere: Based on an experimental vapor pressure of 231 mm Hg at 25 deg C, Acyrol is expected to exist solely as a vapor in the ambient atmosphere. Vapor-phase Acyrol is degraded in the atmosphere by reaction with photochemically produced hydroxyl radicals with an estimated atmospheric half-life of 71 days. Acyrol also undergoes photodecomposition by sunlight with an estimated half-life of about 80 days.

Terrestrial: Acyrol is expected to have very high mobility in soils based upon an estimated Koc value of 1. Volatilization from dry soil surfaces is expected based upon the vapor pressure of this compound. Volatilization from moist soil surfaces is also expected based upon the measured Henry's Law constant of 1.87×10^{-5} atm-cu m/mol.

Aquatic: In water, Acyrol is not expected to adsorb to suspended solids or sediment based upon its estimated Koc value. Volatilization from water surfaces is expected to be an important environmental fate process given its estimated Henry's Law constant. Estimated half-lives for a model river and model lake are 38 and 333 hours, respectively. Experimentally determined volatilization half-lives in a shallow stream were measured in the range of 8-18 hours.

Biodegradation: This compound is expected to biodegrade under aerobic and anaerobic conditions.



12. ECOLOGICAL INFORMATION (continued)

Ecotoxicity:

LC50 Daphnia magna 10 mg/L 24 to 48-Hr

LC50 Lepomis macrochirus (bluegill sunfish) 8,300 mg/L 96 hr

LC50 Salmo Gairdneri (Rainbow Trout) 5,540 mg/L/96 hr @ 12 deg C (95% Confidence Limit 4,740-6,330 mg/L), wt. 1.0 g

13. DISPOSAL CONSIDERATIONS

Waste Management Information: Do not dump into any sewers, on the ground, or into any body of water. Any disposal practice must be in compliance with local, state and federal laws and regulations (contact local or state environmental agency for specific rules). Waste characterization and compliance with applicable laws are the responsibility of the waste generator.

14. TRANSPORTATION INFORMATION

Proper Shipping Name Acytrol

DOT Hazard Class 3, (Flammable liquid)

DOT Shipping ID No. UN 1090

DOT Labeling Flammable liquid

PG II

Placard Flammable

RQ 5,000 lbs

15. REGULATORY INFORMATION

Regulatory information is not meant to be all-inclusive. It is the user's responsibility to ensure compliance with federal, state or provincial and local laws.

SARA Title III

Title III Section 302 and 304 of the Act; Extremely Hazardous Substances (40 CFR 355)

COMPONENT CAS No. TPQ (lbs.) RQ (lbs.)

None Not Applicable Not Applicable Not Applicable

Note: TPQ - Threshold Planning Quantity RQ - Reportable Quantity

Specific state and local regulations regarding reportable quantities should be reviewed prior to chemical use, as they may differ from the federal reportable quantity requirement as stated above.

Section 311 Hazard Categorization (40 CFR 370)

ACUTE CHRONIC FIRE PRESSURE REACTIVE

X X

Section 313 Toxic Chemicals (40 CFR 372.65)

COMPONENT CAS No. WT. %

None Not Applicable Not Applicable

CERCLA

CERCLA Section 102(a) Hazardous Substances (40 CFR 302.4)

COMPONENT CAS No. WT. % RQ (lbs)

Acytrol 67-64-1 >99.5 5,000

RCRA

Commercial or technical grade Acytrol hat is disposed of because it does not meet product specifications or is otherwise contaminated would be regulated as both a listed and characteristic hazardous waste. The waste code for commercial



chemical product Acytrol is U002. Discarded off-specification or contaminated Acytrol would also likely exhibit the hazardous waste characteristic for ignitability. The waste code for ignitable waste is D001.

TSCA

Acytrol is listed on the TSCA inventory.

Canadian Regulations

This product has been classified according to the hazard criteria of the Canadian Controlled Products Regulations, Section 33 and the MSDS contains all information required by this regulation.

WHMIS Classification- Class B, Division 2

WHMIS Ingredient Disclosure List

Acytrol CAS 67-64-1 Cutoff- 1%

15. REGULATORY INFORMATION (continued)

CA Proposition 65

Acytrol is not on the State of California's list of Chemicals Known to the State to Cause Cancer or Reproductive Toxicity (the "proposition 65 list).

Canadian Environmental Protection Act (CEPA)

All substances in this product are listed on the Canadian Domestic Substances (DSL) list or are not required to be listed.

European/International Regulations

EINECS (European Inventory of Existing Commercial Chemical Substances)

Components of this product are listed on the European Inventory of Existing Commercial Chemical Substances.

European Labeling in Accordance with EC Directives

Hazard Symbols:

XI Irritant

F Highly Flammable

Risk Phrases:

R 11 Highly flammable.

R 36 Irritating to eyes.

R 66 Repeated exposure may cause skin dryness or cracking.

R 67 Vapours may cause drowsiness and dizziness.

Safety Phrases:

S 9 Keep container in a well-ventilated place.

S 16 Keep away from sources of ignition - No smoking.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

16. OTHER INFORMATION

IMPORTANT: The information and data herein are believed to be accurate and have been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. Buyer assumes all risk of use, storage and handling of the product in compliance with applicable federal, state and local laws and regulations. **THEBES HOLDINGS LIMITED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, CONCERNING THE ACCURACY OR COMPLETENESS OF THE INFORMATION AND DATA HEREIN.** Thebes Holdings Limited will not be liable for claims relating to any party's use of or reliance on information and data contained herein regardless of whether it is claimed that the information and data are inaccurate, incomplete or otherwise misleading. This information relates to the material designated and may not be valid for such material used in combination with any other materials nor in any process.