

School Material Safety Data Sheet

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DUPLICATING FLUID

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SECTION 1. INTRODUCTORY INFORMATION

MATERIAL NAME: DUPLICATING FLUID

SYNONYMS: Spirit Fluid, Carbinol

INGREDIENTS: Methyl Alcohol, (CH₃OH); >95% (CAS #0067-56-1); Other ingredients vary by manufacturer.

Note: Other formulations may be available (see below).

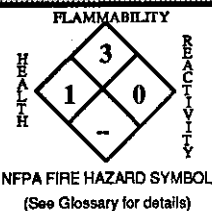
DOT CLASSIFICATION: Flammable Liquid

EPA CLASSIFICATION: Hazardous Waste

MANUFACTURERS INCLUDE: Always request Material Safety Data Sheets from your chemical supplier. These should indicate the manufacturer of the substance and include an emergency phone number to call. The Manufacturers section of this book contains a listing of some of the larger manufacturers and available emergency numbers. (The name of the manufacturer of duplicating fluid should be noted on the container.)

DESCRIPTION: A clear, colorless liquid with a characteristic alcohol odor. Odor recognition threshold (100% of test panel) is 53.3 ppm.

PRELIMINARY INFORMATION: The major ingredient of most formulations is methyl alcohol, a poisonous, narcotic chemical that can exert its effects through skin absorption or ingestion. All duplicating fluids are flammable. Some commercially available preparations, however, use mostly ethyl alcohol (TLV 1000 ppm) and some isopropyl alcohol (TLV 400 ppm) instead. Although these may be less hazardous due to the higher TLVs, the odor may be stronger.



SECTION 2. USE AND STORAGE INFORMATION

-- PRELIMINARY PLANNING CONSIDERATIONS --

- For safety, contact lenses should not be worn by those working with this material. Soft lenses may absorb and all lenses may concentrate irritants.
- Eliminate sources of ignition. Be sure electrical service and equipment will not generate sparks.
- Proper ventilation is a necessity in rooms where this material is used.
- Employees using duplicating fluid should know location of a nearby eyewash station.

-- USAGE PRECAUTIONS AND PROCEDURES --

- No smoking in storage or use area.
- READ THE LABEL and follow all precautions.
- After working with this material, always wash hands and face before eating, drinking, or smoking.
- Do not breathe vapors - use only with proper ventilation.
- This material is poisonous when introduced into the body's metabolism. Do not ingest!
- Keep away from sources of heat or ignition. Avoid static sparks.

-- ADDITIONAL INFORMATION --

- Does not undergo hazardous polymerization. Material is stable under normal conditions of use and storage.
- An explosion-proof exhaust system, designed to control vapors at duplicating machines, is desirable.

-- PREFERRED STORAGE LOCATION AND METHODS --

- Storage area should be cool and well ventilated. Containers should be tightly closed. Keep containers away from sources of heat or ignition.
- Do not store chemicals alphabetically by name; store by chemical family instead to keep compatibles together.
- All chemical containers should be protected from physical damage and kept out of direct sunlight.
- No smoking in storage or use area.
- Purchase at regular intervals to avoid excess inventory (and associated hazards).
- Storage in an approved "FLAMMABLES" cabinet is recommended.

SECTION 3. SPILLS & DISPOSAL PROCEDURES

IF MATERIAL IS SPILLED:

- Remove all sources of ignition.
- Provide maximum explosion-proof ventilation.
- Cleanup personnel should have protection against inhalation of vapors or skin contact.
- Use nonsparking tools for cleanup.
- Absorb on vermiculite, paper, or other absorbent. Dispose of by incineration as noted below.

DISPOSAL OF SMALL QUANTITIES:

- Very small amounts (absorbed on paper toweling, etc.) may be evaporated in a properly working chemical fume hood, regulations permitting.
- Burn in approved incinerator or open pit in secure area away from buildings or people.
- Do not flush down drains (EPA hazardous waste).

DISPOSAL OF LARGER AMOUNTS: Contact a licensed disposal company or return unwanted inventory to manufacturer.

*** FOLLOW ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS FOR ALL WASTE DISPOSAL ***

SECTION 4: HEALTH HAZARDS

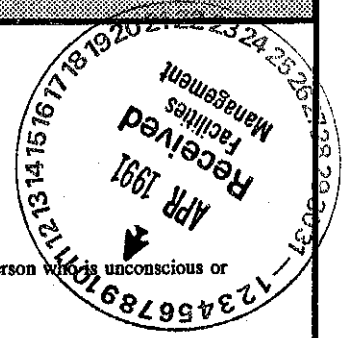
- Current (1985-86) OSHA PEL, and ACGIH TLV: 8-hr. TWA : 200 ppm; (260 mg/m³) (skin*)
- STEL is 250 ppm (310 mg/m³)
- NIOSH has recommended a 10-hr TWA of 200 ppm with a ceiling of 800 ppm (15 min. sample).
- Human: Eye; 5 ppm - primary irritation dose.
Oral; LDLo: 340 mg/kg
Inhalation; TCLo: 86000 mg/m³ - Toxic irritant effects (systemic)
- Body elimination of methanol is slow, and the toxic effects can be compounded by repeated exposure over several days. Toxic effects are exerted on the CNS, especially the optic nerve. Weakness, fatigue, and visual disturbances are common through inhalation of vapor or ingestion of fluids. Prolonged or repeated skin contact will cause dermatitis, erythema, and scaling.
- Ingestion can produce blindness. Symptoms of overexposure include dizziness, visual impairment, nausea, respiratory failure, muscular incoordination, and narcosis. Visual disturbances may clear temporarily then reoccur and progress to blindness.
- Initial symptoms may be blurred vision, photophobia, headache, and gastrointestinal complaints.
- Ingestion of 100-250 ml is considered the fatal dose, although death from ingestion of less than 33 ml. has been reported.
- Duplicating fluid has not been identified as a known or suspected carcinogen by the NTP, IARC, or OSHA.

* Skin notation added by ACGIH.

SECTION 5: FIRST AID PROCEDURES

- Eye contact:
- Flush eyes promptly with plenty of running water for at least 15 minutes, including under the eyelids.
 - Get prompt medical attention.*
- Skin contact:
- Flush exposed area with water while removing contaminated clothing.
 - Wash exposed areas of skin with soap and water. Apply skin lotions.
 - Get medical help if irritation persists.*
- Inhalation:
- Remove patient to fresh air and prevent further exposure for 7 days.
 - Obtain medical assistance if victim is not fully normal within 10 minutes.
- Ingestion:
- Give victim 3 to 4 glasses of water or milk to drink and induce vomiting. Never give anything by mouth to a person who is unconscious or convulsing.
 - Contact medical personnel or poison control center.*
 - Transport victim to a medical facility immediately.

* Get medical help (in school, paramedic, community) for further treatment, observation, and support after first aid.



SECTION 6: FIRE PROCEDURES AND DATA

- Methyl alcohol fires are Class IB fires; use a blanketing effect to smother fire. Extinguishing media: Carbon dioxide, dry chemical, "alcohol" foam, and water mist or fog.
- Methyl alcohol is a moderate explosion hazard and dangerous fire hazard when exposed to heat, sparks, or flames and can react vigorously with oxidizing agents.
- For major fires, for fires involving a number of chemicals, or if large quantities of this material are involved, fire fighters should wear appropriate protective clothing and use respiratory protection. Self-contained breathing apparatus is recommended.
- Use of direct water stream may scatter fire. A water spray may be used to cool fire-exposed containers and disperse vapors.
- The heavier-than-air vapors may flow along surfaces to distant sources of ignition and flash back.

THERMAL DECOMPOSITION (OR BURNING) PRODUCTS: Oxides of nitrogen, carbon monoxide (CO), carbon dioxide (CO₂), and possible toxic formaldehyde.

FLASH POINT AND METHOD(S) (CC) ... 60.8°F (12°C)
 AUTOIGNITION TEMPERATURE ... 725°F (385°C)
 FLAMMABILITY LIMITS IN AIR (vol. %) :
 Lower ... 6 Upper ... 36.5

SECTION 7: PHYSICAL DATA

BOILING POINT: (@ 1 atm) ... 148.5°F (64.5°C)	SPECIFIC GRAVITY (20°/4°C) ... 0.791
ABSOLUTE VISCOSITY (@ 20°C, cps) ... 0.59	MELTING POINT ... -144°F (-97.8°C)
VAPOR PRESSURE (21.2°C, mm Hg) ... 100 (400 @ 50°C)	MOLECULAR WEIGHT ... 32.04
VAPOR DENSITY (air=1) ... 1.1	EVAPORATION RATE (BuAc=1) ... 5.9
SOLUBILITY IN WATER (@ 20°C) ... Totally Miscible	% VOLATILE ... ca 100

DATA SOURCES: Genium's Industrial MSDS #354 and references 1, 2, 4-12, 16, 19, 20, 23-26, 31, 34, 37-39, 43, 47, 63, 79, 501, 503, 512, 518.
 (see glossary for titles)

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