



MATERIAL SAFETY
 DATA SHEET

MATERIAL SAFETY
 DATA SHEET

Copyright, 1998, Minnesota Mining and Manufacturing Company. All rights reserved. Copying and/or downloading of this information for the purpose of preparing 3M products is allowed, provided that: 1) the information is copied in full with no changes unless prior agreement is obtained from 3M, and 2) neither the copy nor the original is resold or otherwise distributed with the intention of earning a profit thereon.

MSDS: 3M Brand HEAVY DUTY AIRCRAFT CLEANER CONCENTRATE
 (Product No. 72, Twist 'n Fill (tm) System)
 JANUARY 21, 1998
 PAGE: 2 of 6

DIVISION: COMMERCIAL CARE DIVISION

TRADE NAME: HEAVY DUTY AIRCRAFT CLEANER CONCENTRATE
 3M Brand HEAVY DUTY AIRCRAFT CLEANER CONCENTRATE
 (Product No. 72, Twist 'n Fill (tm) System)
 ID NUMBER: U.P.C.: 70-0705-4326-7 00-48011-19213-5 70-0705-4697-6 00-48011-19165-7
 70-0705-4906-1 00-48011-19310-1 70-0707-1423-6 00-48011-23011-0

ISSUED: JANUARY 21, 1998
 SUPERSEDES: DECEMBER 8, 1997
 DOCUMENT: 06-2053-0

1. INGREDIENT	C.A.S. NO.	PERCENT
WATER	7732-18-5	60
1-METHOXY-2-PROPANOL	107-98-2	10
ETHANOLAMINE	141-43-5	5
HYDROXYALKYL AMINE OXIDES	68478-65-9	1
		90
		30
		10
		5

NOTE: IN CASE OF EMERGENCY: THE NUMBERS AT THE TOP OF THIS PAGE PROVIDE 24 HOUR RESPONSE FROM ANY PHONE FOR ALL EMERGENCIES WITH THIS PRODUCT.

2. PHYSICAL DATA

BOILING POINT: N/D
 VAPOR PRESSURE: N/D
 VAPOR DENSITY: N/D
 EVAPORATION RATE: N/D
 SOLUBILITY IN WATER: Complete
 SP. GRAVITY: ca. 0.978 Water = 1
 PERCENT VOLATILE: ca. 95 %
 PHOSPHORY: ca. 11
 MELTING POINT: N/A
 APPEARANCE AND ODOR: Liquid, light green color; mild fragrance

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: ca. 133 F T.C.C.
 FLAMMABLE LIMITS - LEL: N/D
 FLAMMABLE LIMITS - UEL: N/D
 AUTOIGNITION TEMPERATURE: N/D
 EXTINGUISHING MEDIA: Water spray, Carbon dioxide, Dry chemical, Foam, Alcohol-type foam
 SPECIAL FIRE FIGHTING PROCEDURES: Wear full protective clothing, including helmet, self-contained, wear

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA (continued)

positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.
 UNSUAL FIRE AND EXPLOSION HAZARDS: See Hazardous Decomposition section for products of combustion. Closed containers exposed to heat from fire may build pressure and explode.
 NFPA HAZARD CODES: HEALTH: 2 FIRE: 2 REACTIVITY: 0
 UNSUAL REACTION HAZARD: none
 OSHA FIRE HAZARD CLASS: Class II Combustible Liquid

4. REACTIVITY DATA

STABILITY: Stable
 INCOMPATIBILITY - MATERIALS TO AVOID: Strong Oxidizing Agents.
 HAZARDOUS POLYMERIZATION: Will Not Occur
 HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Monoxide and Carbon Dioxide, Irritant Vapors or Gases.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:

Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Ventilate or unprotect personnel from hazard area. Contain spill. Evacuate area. Collect using non-sparking tools. Clean up residue with water. Place in an approved metal container. Seal the container.

RECOMMENDED DISPOSAL:

Incorporate in a permitted hazardous waste incinerator.
 ENVIRONMENTAL DATA:
 A Product Environmental Data Sheet (PED) is available.

The use of this product is expected to have no significant environmental impact. All components will eventually degrade in the environment.

REGULATORY INFORMATION:

Volatile Organic Compounds: ca. 33 %
 VOC Less H2O & Exempt Solvents: ca. 35 %
 Since regulations vary, consult applicable regulations or authorities before disposal. In the event of an uncontrolled release of this material, the user should determine if a competent release qualifies as a reportable quantity. U.S. EPA Hazardous Waste Number = D001 (Ignitable)

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

MATERIAL SAFETY
DATA SHEET



MSDS: 3M Brand HEAVY DUTY AIRCRAFT CLEANER CONCENTRATE
(Product No. 72, Twist 'n Fill (tm) System)
JANUARY 21, 1998
PAGE: 3 of 6

5. ENVIRONMENTAL INFORMATION (continued)

TSCA: All chemicals used in the manufacture of this material are in compliance with the US TSCA inventory.

EPICRA HAZARD CLASS: No ACUTE: Yes CHRONIC: Yes
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.

SKIN CONTACT:
Immediately wash skin with soap and large amounts of water. Remove contaminated clothing. If signs/symptoms occur, call a physician. Wash contaminated clothing before reuse and dispose of contaminated shoes.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
NOTE: When used as directed and diluted and dispensed with a TWIST'N FILL (tm) Chemical Dispenser, eye contact with the concentrate is not expected to occur. Avoid eye contact. Wear vented goggles.

SKIN PROTECTION:
NOTE: When used as directed and diluted and dispensed with a TWIST'N FILL (tm) Chemical Dispenser, skin contact with the concentrate is not expected to occur. Avoid skin contact. Wear appropriate gloves when handling this material. A pair of gloves made from the following material(s) are recommended: butyl rubber, neoprene, nitrile rubber. Use one or more of the following personal protection items as necessary to prevent skin contact: coveralls.

VENTILATION PROTECTION:
NOTE: When used as directed and diluted and dispensed with a TWIST'N FILL (tm) Chemical Dispenser, special ventilation is not required. Use with appropriate local exhaust ventilation. Provide appropriate local exhaust ventilation at transfer points. If exhaust ventilation is not adequate, use appropriate respiratory protection.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

MATERIAL SAFETY
DATA SHEET



MSDS: 3M Brand HEAVY DUTY AIRCRAFT CLEANER CONCENTRATE
(Product No. 72, Twist 'n Fill (tm) System)
JANUARY 21, 1998
PAGE: 4 of 6

7. PRECAUTIONARY INFORMATION (continued)

RESPIRATORY PROTECTION:
NOTE: When used as directed and diluted and dispensed with a TWIST'N FILL (tm) Chemical Dispenser, respiratory protection is not required. Avoid breathing of vapors, mists or spray. Avoid breathing of airborne material. Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: half-mask organic vapor respirator, full-face organic vapor respirator.

PREVENTION OF ACCIDENTAL INGESTION:

Wash hands after handling and before eating.

RECOMMENDED STORAGE:

Store away from heat. Keep container in well-ventilated area. Keep out of the reach of children.

FIRE AND EXPLOSION AVOIDANCE:

Keep container tightly closed. Keep away from heat, sparks, open flame, and other sources of ignition. Combustible liquid and vapor.

OTHER PRECAUTIONARY INFORMATION:

Not intended for consumer sale or use. This product is not intended to be used without prior dilution as specified on the product label.

HMIS HAZARD RATINGS: HEALTH: 2 FLAMMABILITY: 2 REACTIVITY: 0
PERSONAL PROTECTION: X (See precautions, section 7.)

EXPOSURE LIMITS

INGREDIENTS	VALUE		UNIT	TYPE AUTH	
	NONE	NONE		NONE	NONE
WATER	NONE	SKIN*
1-METHOXY-2-PROPANOL	100	ppm	TWA	ACGIH
1-METHOXY-2-PROPANOL	150	ppm	TWA	OSHA
1-METHOXY-2-PROPANOL	150	ppm	STEL	OSHA
ETHANOLAMINE	3	ppm	TWA	ACGIH
ETHANOLAMINE	6	ppm	STEL	ACGIH
ETHANOLAMINE	3	ppm	TWA	OSHA
ETHANOLAMINE	6	ppm	STEL	OSHA
HYDROXYALKYL AMINE OXIDES	NONE	NONE	NONE	NONE

* SKIN NOTATION: listed substances indicated with *m under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:

- ACGIH: American Conference of Governmental Industrial Hygienists
- AIHA: American Industrial Hygiene Assoc. Workplace Environmental Exposure Level 6
- OSHA: Occupational Safety and Health Administration
- NONE: None Established

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3M General Offices
3M Center
St. Paul, MN 55144-1000
1-800-364-3577 or (612) 737-6501 (24 hours)
4480

MATERIAL SAFETY
DATA SHEET

MSDS: 3M Brand HEAVY DUTY AIRCRAFT CLEANER CONCENTRATE
(Product No. 72, Twist 'n Fill (tm) System)
JANUARY 21, 1998
PAGE: 5 of 6

6. HEALTH HAZARD DATA

EYE CONTACT: Irritation: signs/symptoms can include redness, swelling, severe eye pain, tearing, cloudy appearance of the cornea, impaired vision and possible permanently impaired vision.

SKIN CONTACT: Irritation: signs/symptoms can include redness, swelling, itching, dryness, cracking, blistering, and pain.
May be absorbed through the skin and produce effects similar to those caused by inhalation and/or ingestion.

INHALATION: Single overexposure, above recommended guidelines, may cause:

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slurred reaction time, slurred speech, giddiness and unconsciousness.

Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

WHILE THE FOLLOWING EFFECTS ARE ASSOCIATED WITH ONE OR MORE OF THE INDIVIDUAL INGREDIENTS IN THIS PRODUCT AND ARE REQUIRED TO BE INCLUDED ON THE MSDS BY THE U.S. OSHA HAZARD COMMUNICATION STANDARD, THEY ARE NOT EXPECTED EFFECTS DURING FORESEEABLE USE OF THIS PRODUCT.

Prolonged or repeated overexposure, above recommended guidelines, may cause:

Kidney Effects: signs/symptoms can include reduced urine volume, blood in urine and back pain.

Liver Effects: signs/symptoms can include yellow skin (jaundice) and tenderness of upper abdomen.

IF SWALLOWED: Ingestion is not a likely route of exposure to this product.

Ingestion may cause:

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

OTHER HEALTH HAZARD INFORMATION: MEDICAL CONDITIONS ABBREVIATED BY EXPOSURE: medical conditions, if

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3M General Offices
3M Center
St. Paul, MN 55144-1000
1-800-364-3577 or (612) 737-6501 (24 hours)
4481

MATERIAL SAFETY
DATA SHEET

MSDS: 3M Brand HEAVY DUTY AIRCRAFT CLEANER CONCENTRATE
(Product No. 72, Twist 'n Fill (tm) System)
JANUARY 21, 1998
PAGE: 6 of 6

8. HEALTH HAZARD DATA

(continued)

any, known to be aggravated by exposure to this product are indicated in the appropriate portions of the Health Hazard Data section of this data sheet.

CARCINOGENS: components of this product, if any, known to cause, or suspected of causing, cancer as determined by OSHA, IARC, or NTP are described in the Health Hazard Data section of this data sheet in accord with the OSHA Hazard Communications Standard, 29 CFR 1910.1200

SECTION CHANGE DATES

SECTION CHANGED SINCE DECEMBER 8, 1997 ISSUE

INGREDIENTS

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

The information in this Material Safety Sheet (MSDS) is believed to be correct as of the date issued. 3M MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR TRADE. 3M IS NOT RESPONSIBLE FOR DETERMINING WHETHER THE 3M PRODUCT IS APPLICABLE TO A PARTICULAR PURPOSE AND SUITABLE FOR USER'S METHOD OF USE OR APPLICATION. Given the variety of factors that can affect the user's use and control, it is essential that the user evaluate within the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

3M provides information in electronic form as a service to its customers. Due to the remote possibility that electronic transfer may have resulted in errors, omissions or alterations in this information, 3M makes no representations as to its completeness or accuracy. In addition, the MSDS available directly from 3M may not be as current as the information in the MSDS available directly from 3M.