

MATERIAL SAFETY DATA SHEET

Niran Technologies, Inc.



PAGE: 1

DATE PREPARED: 7/02/2003

PRODUCT CODE: 2262001

SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: PUREDRY®
PRODUCT CODE: 2262001
EFFECTIVE DATE: 6/02/2003

CONTACT ADDRESS: Niran Technologies, Inc.
West Orange, NJ 07052

24-HOUR EMERGENCY: 1-800-424-9300

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

Isoparaffins, Perfluorocarbons and Hydrofluoroethers

SECTION 3 HAZARDS IDENTIFICATION

CLEAR LIQUID, VIRTUALLY ODORLESS. NO SIGNIFICANT HAZARDS FOR EMERGENCY RESPONSE ARE KNOWN.

EMERGENCY OVERVIEW

POTENTIAL HEALTH EFFECTS

EYE CONTACT

Contact with the eyes during product use may cause moderate irritation. Corneal injury is unlikely.

SKIN CONTACT

Prolonged or repeated exposure may cause drying of the skin resulting in irritation and dermatitis. A single exposure is not likely to result in the material being absorbed through skin in harmful amounts.

INGESTION

Ingestion is not a likely route of exposure to this product. However, may be harmful if swallowed.

INHALATION

Vapor concentrations or aerosol discharges may cause irritation to the eyes, nose, throat and respiratory tract. High vapor concentrations may result in headaches, anesthesia and central nervous system depression.

MATERIAL SAFETY DATA SHEET

Niran Technologies, Inc.



PAGE: 2
DATE PREPARED: 7/02/2003
PRODUCT CODE: 2262001

SECTION 4 FIRST AID MEASURES

EYE CONTACT

Flush eyes with plenty of water while holding eyelids open. If redness, burning, blurred vision or swelling persists, get medical attention.

SKIN

Wash off with soap in flowing water or shower.

INHALATION

A single prolonged inhalation (hours) exposure is not likely to cause adverse effects. In case of difficulty in breathing or tightness of the chest or dizziness, give 100% oxygen or CPR as required and transport to a medical facility.

INGESTION

Do not induce vomiting unless directed to do so by medical personnel. Drink a large amount of milk, egg whites, or gelatin (water if these are not available).

SECTION 5 FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS

During a fire, smoke may contain the original material in addition to unidentified toxic and or irritating compounds that may include hydrogen fluoride and perfluorinated acid fluorides. Contain water run-off, if possible. Fire water run-off, if not contained and collected, may cause environmental damage. (See STABILITY AND REACTIVITY- SECTION 11 for hazardous combustion and thermal decomposition information).

OTHER FLAMMABILITY INFORMATION

This material does not readily ignite or burn. Container may vent or rupture due to fire. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas.

EXTINGUISHING MEDIA

This material does not readily burn. If exposed to fire from another source use suitable extinguishing agent for that fire.

MATERIAL SAFETY DATA SHEET

Niran Technologies, Inc.



PAGE: 3
DATE PREPARED: 7/02/2003
PRODUCT CODE: 2262001

PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS

Wear positive pressure, self-contained breathing apparatus (SCBA) and protective fire fighting clothing includes fire fighting helmet, coat, pants, boots and gloves.

FLAMMABLE PROPERTIES

FLASH POINT (PMCC) ⁽¹⁾
350 °F

AUTOIGNITION TEMPERATURE

Test Standard

The test was performed in accordance with ASTM Method E 659 "Standard Test Method for Autoignition Temperature of Liquid Chemicals"

The test identifies the lowest temperature at which the sample will spontaneously ignite under the test conditions

Test Method

The autoignition temperature is measured in a 500 ml glass flask which is heated in an electrical furnace. A small sample of test material is injected into the heated flask using a syringe and its ignition behavior is observed. The temperature and sample size are then varied to determine the lowest ignition temperature.

AUTOIGNITION TEMPERATURE
(346 – 349) °C

LIMITS OF FLAMMABILITY

Test Standard

The test was performed in accordance with ASTM Method E-681, "Standard Test Method for Concentration Limits of Flammability of Chemicals".

This test identifies the minimum and maximum concentration of a combustible substance in air at atmospheric pressure through which a flame will just propagate away from the ignition source.

MATERIAL SAFETY DATA SHEET

Niran Technologies, Inc.



PAGE: 4
DATE PREPARED: 7/02/2003
PRODUCT CODE: 2262001

The test apparatus consists of a round bottom flask, which is approximately 5-liters in volume and can be heated to 300°C. A type-K thermocouple was placed inside the flask to measure the temperature of the reactants. The temperature of the flask was controlled by controlling the temperature of the heater. Two electrodes were placed inside the flask at the approximate center and having a spark gap of 6mm. The electrodes were connected to a high voltage power supply capable of delivering 10,000 volts @ 25mA across the electrode gap. This spark was used as the ignition source. The vessel was fitted with a magnetic stirrer to ensure uniform mixing of the gases.

The vessel was heated to the desired temperature and after a period of equilibration, the vessel was evacuated and a measured amount of liquid introduced into the vessel. The stirring mechanism was then activated to agitate the liquid and produce a larger surface area for evaporation. Air was then allowed to ingress the system until atmospheric pressure was achieved. The gas mixture was then left for 5 minutes to form a homogeneous mixture and to allow thermal equilibrium. The high energy ignition source was then activated for 1 second and the test vessel was observed to detect ignition.

FLAMMABLE LIMITS (% v/v)
Low Flammable Limit (LEL) - .52
Upper Flammable Limit (UEL) - 6.4

SECTION 6 ACCIDENTAL RELEASE MEASURES

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED PROTECTIVE MEASURES:

Eliminate potential sources of ignition.
Wear appropriate personal protective equipment when responding to spills as specified in Section 5.

SPILL MANAGEMENT

Shut off source of leak. Dike and contain spill. Keep out of sewers, storm drains, surface waters, basements and soil.

MATERIAL SAFETY DATA SHEET

Niran Technologies, Inc.



PAGE: 5
DATE PREPARED: 7/02/2003
PRODUCT CODE: 2262001

SECTION 7 ACCIDENTAL RELEASE MEASURES-CONTINUED

CLEANUP

Pump up or soak up with sand or other absorbent. Application of vapor suppressant foams may be appropriate.

SECTION 8 HANDLING AND STORAGE

HANDLING

Keep unconfined liquid and vapor away from heat and open flames to avoid decomposition products.

STORAGE

Keep containers tightly closed when not in use to avoid evaporation. Do not cut, drill, grind, weld or perform similar operations on or near empty containers.

SECTION 9 EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

Good ventilation should be sufficient for most conditions.

PERSONAL PROTECTIVE EQUIPMENT

EYE-FACE PROTECTION

Use chemical goggles.

SKIN PROTECTION

Use gloves impervious to this material when prolonged or frequently repeated contacts should occur.

RESPIRATORY PROTECTION

No occupational exposure limits have been developed for this material. Where exposure through inhalation may occur from use, National Institute for Occupational Safety and Health (NIOSH) / Mine Safety and Health Administration (MSHA) approved respiratory protection equipment is recommended.

MATERIAL SAFETY DATA SHEET

Niran Technologies, Inc.



PAGE: 6
DATE PREPARED: 7/02/2003
PRODUCT CODE: 2262001

SECTION 10 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE / PHYSICAL STATE

Clear Liquid

ODOR

Slight solvent odor

VAPOR PRESSURE

2.1 mm Hg @ 77 F

VAPOR DENSITY

NA

BOILING POINT

298 F, 147 C

SOLUBILITY IN WATER

Insoluble

SPECIFIC GRAVITY (WATER = 1)

.80 @ 77 F

KB VALUE

37-40

PH

NA

DENSITY (LBS/GAL)

6.71

DENSITY (KG/M3)

804.1

VISCOSITY

1.2Cp @ 77 F

SURFACE TENSION

22 @ 77 F

SECTION 11 STABILITY AND REACTIVITY

CHEMICAL STABILITY

Stable under recommended storage and use conditions.

HAZARDOUS POLYMERIZATION

Will not occur

MATERIAL SAFETY DATA SHEET



PAGE: 7
DATE PREPARED: 7/02/2003
PRODUCT CODE: 2262001

SECTION 11 STABILITY AND REACTIVITY-CONTINUED

HAZARDOUS THERMAL DECOMPOSITION / COMBUSTION PRODUCTS CONDITIONS TO AVOID

Avoid open flames, welding arcs or other high temperature sources which might induce thermal decomposition. (NOTE: Decomposition of components of this product can form hydrogen fluoride and perfluoroisobutylene (PFIB)). Formation of PFIB will only occur at temperatures exceeding 570° F and PFIB will only accumulate with continuous exposure to excessive heat in a sealed vessel. The formation rate for PFIB is about 1000 times less than the rate for primary thermal decomposition products such as HF or CO. During normal use conditions, no health hazard is associated with the use of PureDry due to PFIB exposure.

INCOMPATIBILITY

(materials to avoid) NONE known

SECTION 12 TOXICOLOGICAL INFORMATION

PRODUCT INFORMATION

ACUTE DERMAL TOXICITY

Dose level, 1,000 mg/kg (rats). All animals survived exposure to PureDry. Acute Dermal LD50 > 1,000 mg/Kg (rats).

ACUTE INHALATION TOXICITY

Exposure level 20.68 mg/L (nominal). All animals survived exposure to the test atmosphere. Inhalation LC50 > 20.68 mg/L (rats).

ACUTE ORAL TOXICITY

Dose level 500 mg/Kg. All animals survived exposure to PureDry. Acute Oral LD50 > 500 mg/Kg (rats).

PRIMARY EYE IRRITATION

Ocular Irritation MMTS 0.7 (Average irritation score) Not considered an eye irritant (rabbits).

PRIMARY SKIN IRRITATION

Primary Dermal Irritation Index (PDII) 3.7 (Average irritation score) (rabbits).

Not a primary irritant. Very slight to well-defined erythema and very slight edema persisted at all abraded and intact dose sites at 72 hours.

MATERIAL SAFETY DATA SHEET



PAGE: 8
DATE PREPARED: 7/02/2003
PRODUCT CODE: 2262001

SECTION 13 ECOLOGICAL INFORMATION

BIODEGRADABILITY

5 Day Biochemical Oxygen Demand (BOD5)

0.9g/l PureDry

SECTION 14 DISPOSAL CONSIDERATIONS

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, state/provincial, and local regulations. Recover nonusable free liquid and dispose of in approved and permitted incinerator or in an approved and permitted biological treatment system. Recover contaminated water and dispose of in an approved permitted biological treatment system. remove nonusable solid material and/or contaminated soil for disposal in an approved and permitted landfill. Do no flush to surface water or sanitary sewer system.

SECTION 15 TRANSPORTATION INFORMATION

SHIPPING INFORMATION

Not regulated as a hazardous material by DOT, IMO, or IATA.

SECTION 16 REGULATORY INFORMATION

NOT MEANT TO BE ALL-INCLUSIVE-SELECTIVE REGULATIONS REPRESENTED

CERCLA

Spill requirements

Non regulated

SARA

Title III release reporting required

Non regulated

VOC

Per Title I, Clean Air Act Amendments of 1980

YES

HAP

Compound per Title III, Clean Air Act Amendments of 1980

NO

MATERIAL SAFETY DATA SHEET

Niran Technologies, Inc.



PAGE: 9
DATE PREPARED: 7/02/2003
PRODUCT CODE: 2262001

-Hydrogen fluoride has an ACGIH Threshold Limit Value of 3 parts per million (as fluoride) as a Ceiling Limit and an OSHA PEL of 3 ppm of fluoride as an eight hour Time-Weighted Average and 6 ppm of fluoride as a Short Term Exposure Limit. The odor threshold for HF is 0.04 ppm, providing good warning properties for exposure.

Perfluoroisobutylene has an ACGIH threshold limit value of 0.01 parts per million parts of air as a ceiling limit or 0.082 milligrams per cubic meter as a ceiling limit.

- (1) During vacuum distillation of solvent operator must maintain the distillate temperature below 80 °F as solvent exits the condenser or solvent Flashpoint may change to 140 ° - 200 °F range (Class IIIA). Lowering of the Flashpoint will have no effect on the superior cleaning capability and benefits of PUREDRY.

REVISION SUMMARY

Since MAY 2, 2003 this MSDS has been revised to incorporate Registered Trademark PureDry[®], Registration Date May 27, 2003; Registration No. 2,718,776 and to revise Section 5: Fire Fighting Measures, and Section 11: Stability and Reactivity.

REFERENCE NUMBER: N-103 SUPERSEDES ISSUE DATE: MAY 2, 2003

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