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Dr. S. Campbell



# FUJIFILM

## MATERIAL SAFETY DATA SHEET

Product Number: 00000000000837773

FOR ANY HEALTH & MEDICAL EMERGENCY, 24 HOURS /7 DAYS CALL:	1-800-365-8951
FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC:	1-800-424-9300
FOR ALL MSDS REQUESTS & QUESTIONS, CALL CUSTOMER SERVICE:	1-800-553-6546

PRODUCT NAME: **WNRD**

### 1. PRODUCT AND COMPANY IDENTIFICATION

REVISION DATE:	01-10-2005
SUPERCEDES:	01-09-2005
MSDS NO:	00501
SYNONYMS:	Waycoat Negative Resist Developer
CHEMICAL FAMILY:	Aliphatic hydrocarbon
DESCRIPTION / USE:	Solvent for negative photoresists
FORMULA:	Not applicable/Mixture

FUJIFILM ELECTRONIC MATERIALS U.S.A., INC. 80 CIRCUIT ROAD NORTH KINGSTOWN, RI 02852

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS or CHEMICAL NAME	CAS #	% Range
Naphtha, petroleum, hydrotreated heavy	64742-48-9	~ 100

### 3. HAZARDS IDENTIFICATION

**OSHA Hazard Classification:** combustible liquid, mild skin irritant, mild eye and respiratory irritant, central nervous system depressant, Aspiration hazard

Routes of Entry:	Inhalation, skin, eyes, ingestion
Chemical Interactions:	No known interactions
Medical Conditions Aggravated:	Dermatitis may be aggravated following exposure.

#### Human Threshold Response Data

##### Odor Threshold:

Naphtha, petroleum, hydrotreated heavy

Approximately 50.0 ppm

##### Irritation Threshold:

Naphtha, petroleum, hydrotreated heavy

Approximately 50.0 ppm

#### Hazardous Materials Identification System/National Fire Protection Association Classifications

<u>Hazard Ratings:</u>	<u>Health</u>	<u>Flammability</u>	<u>Reactivity</u>
HMIS	1	2	0
NFPA	Not established		

#### Immediate (Acute) Health Effects

Inhalation Toxicity:	Not expected to be toxic by inhalation. Inhalation of high concentrations may result in central nervous system (CNS) effects such as dizziness, weakness, fatigue, nausea, headache, and lack of coordination.
Inhalation Irritation:	High concentrations may be slightly irritating to the eyes, nose, throat, and lungs.
Skin Contact:	Skin contact may cause minor irritation consisting of transient redness and/or swelling.
Skin Absorption:	No significant adverse effects to health would be expected to occur from dermal contact.
Eye Contact	Contact would be expected to cause minor irritation, consisting of transient redness and swelling. No corneal involvement or visual impairment is expected.
Ingestion Irritation:	Ingestion may cause irritation of the gastrointestinal tract and gastrointestinal discomfort with any or all of the following symptoms: nausea, vomiting, lethargy or diarrhea.
Ingestion Toxicity:	Not expected to be toxic by ingestion unless large amounts are swallowed. Aspiration of material into the lungs can cause chemical pneumonitis which can be fatal. Ingestion of large quantities of this product may result in central nervous system (CNS) depression.

Acute Target Organ Toxicity: Central nervous system, Skin

#### Prolonged (Chronic) Health Effects

Carcinogenicity:	This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP or EPA.
Reproductive and Developmental Toxicity:	No reproductive or developmental risk to humans is expected from exposure to this product.
Inhalation:	There are no known or reported effects from chronic exposure except for effects similar to those experienced from acute exposure.
Skin Contact:	Dermal contact may cause defatting of skin and/or dermatitis.
Skin Absorption:	There are no known or reported effects from chronic exposure except for effects (if any) similar to those experienced from acute exposure.
Ingestion:	There are no known or reported effects from chronic ingestion except for effects similar to those experienced from single exposure.
Chronic Target Organ Toxicity:	There are no known or reported effects to humans from repeated exposure to this product.
Supplemental Health Hazard Information:	No additional health information available.



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#### 4. FIRST AID MEASURES

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Inhalation:	IF INHALED: Remove individual to fresh air. If respiratory irritation develops, call a physician.
Skin Contact:	IF ON SKIN: Immediately flush skin with plenty of water for 15 minutes. If clothing comes in contact with the product, the clothing should be removed immediately and laundered before re-use. Seek medical attention.
Eyes:	IF IN EYES: Flush eyes with plenty of water for at least 15 minutes. Call a physician if irritation develops.
Ingestion:	IF SWALLOWED: Call a physician immediately. DO NOT induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person.

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#### 5. FIRE FIGHTING MEASURES

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Flammability Summary (OSHA): Combustible.

##### Flammable Properties

Flash Point: 39 - 53 Deg. C. / 102 - 128 Deg. F. (Test Method: Tag Closed Cup)

Autoignition Temperature: Test Method: ASTM D 2155: Approximately 293 Deg. C.

Upper Flammable/Explosive Limit, % in air: 7 %

Lower Flammable/Explosive Limit, % in air: 0.7 %

Fire/Explosion Hazards: Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a flash fire. Vapors are heavier than air and may travel to a source of ignition and flash back.

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, dry chemical, or vaporizing liquid extinguishing agents. Water spray or fog may also be effective for extinguishing or to absorb heat and keep exposed material from being damaged by fire.

Fire Fighting Instructions: In case of fire, use normal fire fighting equipment including a NIOSH approved self-contained breathing apparatus (SCBA).

Hazardous Combustion Products: carbon monoxide, carbon dioxide

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#### 6. ACCIDENTAL RELEASE MEASURES

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Personal Protection for Emergency Situations: Additional protective clothing must be worn to prevent personal contact with this material. Those items include but are not limited to boots, impervious gloves, hard hat, splash-proof goggles, impervious clothing, i.e., chemically impermeable suit, self-contained breathing apparatus.

##### Spill Mitigation Procedures

Air Release: Hazardous concentrations in air may be found in local spill area and immediately downwind. Vapors may be suppressed by the use of water fog. Contain all liquid for treatment and/or disposal as a (potential) hazardous waste.

Water Release: This material is lighter than water. This material is insoluble in water. Contain all liquid for treatment and/or disposal as a (potential) hazardous waste. Divert water flow around spill if possible and safe to do so. Notify all downstream users of possible contamination.

**Land Release:** Create a dike or trench to contain materials. Absorb spill with inert material (e.g., dry sand, clay, earth or commercial absorbent), then place in a chemical waste container. Decontaminate all clothing and the spill area using a detergent and flush with large amounts of water. Contain all contaminated water for disposal and/or treatment.

**Additional Spill Information:** Remove all sources of ignition. Stop source of spill as soon as possible and notify appropriate personnel. Utilize emergency response personal protection equipment prior to the start of any response. Evacuate all non-essential personnel. Dispose of spill residues per guidelines under Section 13, Disposal Consideration.

## **7. HANDLING AND STORAGE**

**Handling:** Do not take internally. Avoid contact with skin, eyes and clothing. Upon contact with skin or eyes, wash off with water. Avoid breathing mist or vapor. Ground and bond containers when transferring material.

**Storage:** Store in a cool dry ventilated location, away from sources of ignition or other incompatible conditions and chemicals. Keep container(s) closed. Outside or detached storage is preferred. Inside storage should be in a standard flammable liquids storage room or cabinet.

**Shelf Life Limitations:** See label or certificate of analysis for shelf life if applicable.

**Incompatible Materials for Storage:** Refer to Section 10, "Incompatible Materials."

## **8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Ventilation:** Use local exhaust ventilation to maintain levels below exposure limits.

### Protective Equipment for Routine Use of Product

**Respiratory Protection:** Wear a NIOSH approved respirator if levels above the exposure limits are possible.

**Respirator Type(s):** A NIOSH approved air purifying respirator with organic vapor cartridge. Air purifying respirators should not be used in oxygen deficient or IDLH atmospheres or if exposure concentrations exceed ten (10) times the published limit.

**Skin:** Wear impervious gloves to avoid skin contact. Follow good industrial hygiene practices.

**Eyes:** Use chemical goggles.

**Protective Clothing Type:** Nitrile

### Exposure Limit Data

CHEMICAL NAME	CAS #	OSHA PEL / STEL	ACGIH LIMITS	AIHA WEEL
Isoparaflinic hydrocarbon	64742-48-9	None established	None established	Not Established
Naptha, petroleum, hydrotreated heavy manufacturer internal standard: 196 ppm 1200mg/cubic meter, 8hr. TWA				

**CHEMICAL NAME** NIOSH Immediately Dangerous to Life or Health:  
The IDLH has not been established for this product.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

**Physical State:** clear liquid

**Odor** mild Hydrocarbon odor

**Molecular Weight:** 149



pH	(@ 25 Deg. C) Not applicable
Octanol/Water Coeff:	No data
Solubility in Water:	insoluble
Bulk Density:	0.74 - 0.76 g/cc
Specific Gravity:	0.74 - 0.76
Vapor Density:	5.00 (air =1)
Vapor Pressure:	(@ 25 Deg. C) < 10 mmHg
Evaporation Rate:	0.3 (n-Butyl acetate = 1)
Boiling Point:	156 - 193 Deg. C. 313 - 380 Deg. F.
Freezing Point:	No data
Volatiles, % by vol.:	100 %

## 10. STABILITY AND REACTIVITY

Stability and Reactivity Summary:	Stable under normal conditions. Static discharge may cause ignition at temperatures at or above the flash point.
Reactive Properties:	Combustible, Not sensitive to mechanical shock., Product is sensitive to electrical static discharge.
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	Sparks, open flame, other ignition sources, and elevated temperatures.
Chemical Incompatibility:	strong oxidizing agents
Hazardous Decomposition Products:	carbon dioxide, carbon monoxide
Decomposition Temperature:	No data
Product May Be Unstable At Temperatures Above:	No data

## 11. TOXICOLOGICAL INFORMATION

### Component Animal Toxicology

Oral LD50 value:	
Naphtha, petroleum, hydrotreated heavy	Rat Believed to be > 5 g/kg
Dermal LD50 value:	
Naphtha, petroleum, hydrotreated heavy	Rabbit Believed to be > 2 g/kg
Inhalation LC50 value:	
Naphtha, petroleum, hydrotreated heavy	Inhalation LC50 (4h) Rat Believed to be > 500 ppm
Product Animal Toxicity:	
Oral LD50 value:	Rat Believed to be > 5 g/kg
Dermal LD50 value:	Rabbit Believed to be > 2 g/kg
Inhalation LC50 value:	Inhalation LC50 (4h) Rat Believed to be > 500 ppm
Skin Irritation:	This material is expected to be slightly irritating.
Eye Irritation:	This material is expected to be slightly irritating.
Skin Sensitization:	This material tested negative for skin sensitization in humans and laboratory animals.

Reproductive and Developmental Toxicity:	No reproductive or developmental risk to humans is expected from exposure to this product.
Component Data:	
Naphtha, petroleum, hydrotreated heavy	This chemical has been tested in laboratory animals and no evidence of teratogenicity, embryotoxicity or fetotoxicity was seen.
Mutagenicity:	Not known or reported to be mutagenic.
Component Data:	

Naphtha, petroleum, hydrotreated heavy	This product has been shown to be non-mutagenic based on a battery of assays.
Carcinogenicity:	This chemical is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP, or EPA.

## **12. ECOLOGICAL INFORMATION**

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Ecological Toxicity Values: No data

## **13. DISPOSAL CONSIDERATIONS**

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**CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.**

Waste Disposal Summary:	Spent or discarded material may be a hazardous waste.
Potential US EPA Waste Codes:	D001
Disposal Methods:	As a hazardous liquid waste, it must be disposed of in accordance with local, state and federal regulations in a permitted hazardous waste treatment, storage and disposal facility by incineration.

Components subject to land ban restrictions: Isoparaaffinic hydrocarbons - D001

## **14. TRANSPORT INFORMATION**

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THIS MATERIAL IS REGULATED AS A DOT HAZARDOUS MATERIAL.

DOT Description (49 CFR 172.101):

Land (U.S. DOT): COMBUSTIBLE LIQUID N.O.S., (ISOPARAFFINIC HYDROCARBONS) NA1993 PGIII

Air (IATA/ICAO): HYDROCARBONS, LIQUID N.O.S., 3, UN3295, PG III

Water (IMO): HYDROCARBONS, LIQUID, N.O.S., 3, UN3295, PG III

Flash Point: (C) 39

Hazard Label/Placard:	(Primary)	LAND: NONE
		AIR/WATER: FLAMMABLE

Emergency Response Guide Number: 128

## **15. REGULATORY INFORMATION**

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UNITED STATES:

Toxic Substances Control Act (TSCA): The components of this product are listed on the TSCA Inventory of Existing Chemical Substances.

Pesticide acceptance indication: US EPA Registration Number: Not applicable

Superfund Amendments and Reauthorization Act (SARA) Title III:

Hazard Categories Sections 311/312 (40 CFR 370.2):

Health: Acute

Physical: Fire

Emergency Planning & Community Right to Know (40 CFR 355, App. A):

Extremely Hazardous Substance Section 302 - Threshold Planning Quantity:

Not applicable

Reportable Quantity (40 CFR 302.4):

None listed

Supplier Notification Requirements (40 CFR 372.45), 313 Reportable Components

No 313-listed chemicals in this product

State Right-to-Know Regulations Status of Ingredients

Pennsylvania: Not listed

New Jersey: Not listed

Massachusetts: Not listed

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## 16. OTHER INFORMATION

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MSDS REVISION

STATUS:

Section(s) Revised: III, VIII, XI

MAJOR REFERENCES:

- Liquid Imaging Materials Association Toxicology Subcommittee. Toxicology Update Isoparaffinic hydrocarbons (A Summary of Physical Properties, Toxicity and Human Exposure Data). Liquid Imaging Materials Association, 1989.
- Mullin, L.S., A.W. Ader, W.C. Daughtrey, D.Z. Frost, and M.R. Greenwood. Toxicology update Isoparaffinic Hydrocarbons: A Summary of Physical Properties, Toxicity Studies and Human Exposure Data. Toxicology Update. 0260-437X/90/020135-p 8. John Wiley and Sons, Ltd. pp. 135-142 (1990).

Other references available upon request.

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THE INFORMATION IN THIS MSDS SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. FUJIFILM ELECTRONIC BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION BUT, MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MSDS IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT FUJIFILM ELECTRONIC MATERIALS AT THE PHONE NUMBER 1-800-553-6546 (CUSTOMER SERVICE) TO MAKE CERTAIN DOCUMENT IS CURRENT.