

R510 HF**SECTION 1: Product and Company Identification****1.1 Product identifier**

Product form:	Thermal Transfer Ribbon
Trade Name(s):	R510HF Ultra-Durable Resin Ribbon
CAS-No:	N/A

1.2 Recommended use of the substance or mixture

Black-ink coated ribbon used in thermal transfer printing processes.

1.3 Restrictions on use

No restrictions. Use in accordance with applicable guidelines.

1.4 Details of the supplier of the Safety Data Sheet

DNP Imagingcomm America Corporation
1001 Technology Drive
Mt. Pleasant, PA 15666-1766
Telephone: 724-696-7500

1.5 Emergency telephone

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CONTACT: 724-696-7500.

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture****HCS 2012 (29 CFR 1910.1200)**

Not classified as a hazardous substance.

2.2 Label Elements**HCS 2012 (28 CFR 1910.1200)****Pictogram**

None.

Signal Word

None.

Hazard Statements

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None.

Precautionary Statements

None.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Carbon black was identified as an IARC 2B (possible human) carcinogen in 1996. This classification was made due to results of inhalation testing. Dermal and oral testing did not yield evidence of tumors during these tests. When used under normal and recommended conditions, the carbon black in this application will not be air born and subject to inhalation. This product should therefore present a minimal risk to personal health.

When subject to excessive cutting or abrading, product may form an explosive dust. Keep away from all ignition sources including heat, sparks, and flame. Prevent dust accumulations to minimize hazards.

SECTION 3: Composition/information on ingredients**3.1 Substance**

Not applicable, this product is a mixture.

3.2 Mixture

Chemical Name	Identification (CAS-No.)	Concentration (%)
Base Film		
Polyethylene Terephthalate	25038-59-9	64 – 81
Thermal Transfer Ink		
Acrylic Resin	9011-14-7	10 – 30
Carbon Black	1333-86-4	1 – 10
Synthetic Resin	Trade Secret	1 – 10
The specific chemical identity and/or exact concentration has been withheld as a trade secret.		

SECTION 4: First aid measures**4.1 Description of first aid measures**General advice:

- Consult a physician.
- Show this safety data sheet to the doctor in attendance.

In case of inhalation:

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- As supplied, product is a solid and would not in practice, be inhaled. However, inhalation hazards become more acute if exposure to airborne powder or dust is caused by excessive cutting or abrading.
- If breathed in, move person into fresh air.
- If breathing is difficult, give oxygen.
- If not breathing, give artificial respiration.
- Get immediate medical advice/attention if feeling unwell.

In case of skin contact:

- Not skin sensitive if used under normal conditions and as recommended.
- Wash thoroughly with soap and water.
- If irritation persists, seek medical attention.

In case of eye contact:

- Product can create airborne powder and/or dust when subjected to excessive cutting or abrading.
- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- Seek medical attention if irritation persists.

In case of ingestion:

- If material is swallowed, wash mouth with water and get immediate medical attention or advice.
- If choking, remove obstruction from passageway and seek immediate medical attention.
- Do NOT induce vomiting without medical advice.
- Get medical advice/attention if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed

- No data available.

For more information regarding known symptoms and effects see section 2.2 and/or section 11.

4.3 Indication of any immediate medical attention and special treatment needed

All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. Treat symptomatically. There is no specific antidote available.

SECTION 5: Firefighting Measures

<u>Flash point</u>	Not applicable.
<u>Auto-ignition temperature</u>	500.0 °C (932 °F) [PET film]
<u>Flammability / Explosive Limit</u>	Not applicable.

Data based on the primary component

5.1 Extinguishing Media

Suitable extinguishing media:

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- Water spray.
- Alcohol-resistant foam.
- Dry-chemical.
- Carbon Dioxide.

5.2 Special hazards arising from the substance or mixtureFire Hazard:

- Slightly flammable when exposed to flame or heat.

Explosion Hazard:

- Not applicable.

Reactivity Hazard:

- Upon thermal decomposition: carbon oxides and irritating volatile organic compounds are formed.

5.3 Advice for firefightersSpecial protective equipment for fire-fighters:

- Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing.

5.4 Further information

No data available.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

- Wear appropriate personal protective equipment as specified in section 8.
- Safely collect material and place in proper disposal container.
- Wash walking surface with detergent and water to reduce slipping hazard.

6.2 Environmental precautions

- Discharge into the environment (soil, sewers, rivers, and drains) must be avoided.

6.3 Methods and materials for containment and cleaning up

- Sweep up and collect spilled product.
- Clean contaminated surface thoroughly.
- Dispose of in accordance with local and federal regulations.
- For more disposal information see section 13.

6.4 Reference to other sections

7. Handling and Storage
8. Exposure Controls/Personal Protection
13. Disposal Considerations

R510 HF**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

- As supplied this product is inert. However, protective clothing and respiratory protection should be utilized if the product is handled during excessive cutting or abrading (see Section 8).
- Handle in well ventilated area.
- Wash hands thoroughly after handling.
- Avoid dropping or throwing product.
- Because film roll products are heavy, take precautions to avoid falling product.
- Static electricity may take place during processing; use of static eliminators is recommended.
- For more precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

- Store in a dry location at temperatures between 5°C (41°F) and 40°C (104°F).
- Keep away from heat and direct sunlight.
- Store in a well-ventilated area.
- Keep away from open flames, hot surfaces and sources of ignition.

7.3 Specific end use(s)

- Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection**8.1 Control Parameters****Components with workplace occupational exposure limits**

Carbon black – 1333-86-4		
Value	Control Parameters	Basis
TWA	3.5 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
TWA	3.5 mg/m ³	USA. Occupational Exposure Limits (OSHA) Limits for Air Contaminants
TWA	3.5 mg/m ³	USA. NIOSH Recommended Exposure Limits
TWA	0.1 mg/m ³	USA. NIOSH Recommended Exposure Limits
TWA	3 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
PEL	3.5 mg/m ³	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure Controls

R510 HFEngineering measures:

- Handle in accordance with good industrial hygiene and safety practice.
- Handle in a well-ventilated area.

Personal protective equipment:

- Eye/face protection
 - Not required with normal expected use.
- Hand protection
 - Not required with normal expected use.
 - Gloves may be worn to prevent soiling of hands.
- Skin and body protection
 - Not required with normal expected use.
- Respiratory protection
 - Not required with normal expected use.
 - If occupational exposure limits are exceeded or respiratory irritation occurs, use of a NIOSH/MSHA approved respirator suitable for the use-conditions and chemicals in Section 3 should be considered.
- Hygiene Measures
 - Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this materials:
 - Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
 - Wash hands, face, or any exposed skin carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
 - Wash exposed skin promptly with soap and water to remove any soiling caused by product.

Protective measures:

- The protective equipment must be selected in accordance with current local standards and in cooperation with the supplier of the protective equipment.

Control of environmental exposure:

- Discharge into the environment (soil, sewers, rivers, and drains) must be avoided.

SECTION 9: Physical and chemical properties

Note: Data is based on components as noted. Product not tested.

9.1 Information on basic physical and chemical properties

- | | |
|-------------------|------------------------------|
| a) Appearance | Form: ribbon
Color: black |
| b) Odor | Slight waxy odor |
| c) Odor Threshold | No data available |

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d) pH	No data available
e) Melting point/freezing point	254 – 284°C (489 – 543°F) [PET film]
f) Initial boiling point and boiling range	No data available
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability (solid, gas)	Slightly flammable when exposed to heat or flame.
j) Upper/lower flammability or explosive limits	No data available
k) Vapor pressure	No data available
l) Vapor density	No data available
m) Relative density	1.33 – 1.45 g/cm ³ [PET film]
n) Water solubility	Negligible
o) Partition coefficient: <i>n</i> -octanol/water	No data available
p) Auto-ignition temperature	500.0 °C (932 °F) [PET film]
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	This product is not considered an explosive material under normal use conditions.
t) Oxidizing properties	No data available

9.2 Other Safety Information

No data available.

SECTION 10: Stability and reactivity**10.1 Reactivity**

This material is considered to be non-reactive under normal-use conditions.

10.2 Chemical Stability

Stable under recommended usage and storage conditions.

10.3 Possibility of hazardous reactions

Not expected to occur with normal handling and storage.

10.4 Conditions to avoid

Heat, flames and sparks. Avoid contact with strong acids or strong oxidizing agents.

10.5 Incompatible materials

- No data available.

10.6 Hazardous decomposition products

R510 HFHazardous decomposition products formed under fire conditions:

- Carbon oxides
- Other volatile organic compounds.

Other decomposition products:

- No data available

In the event of fire:

- See section 5.

SECTION 11: Toxicological information

Note: Data is based on components as noted. Product not tested.

11.1 Information on toxicological effectsAcute Toxicity

Acute oral toxicity	LD50 Oral – Rat - > 15,400 mg/kg [Carbon black]
Acute inhalation toxicity	No data available.
Acute dermal toxicity	No data available.
Acute toxicity (other routes of administration)	No data available.

Skin corrosion/irritation

No data available.

Serious eye damage/eye irritation

No data available.

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available.

Carcinogenicity (based on individual components)

IARC:	Carbon Black (1333-86-4): Group 2b (Possibly carcinogenic to humans).
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by OSHA.
ACGIH:	Carbon Black (1333-86-4): A3 (Confirmed animal carcinogen with unknown relevance to humans.

Reproductive toxicity

No data available.

Specific target organ toxicity - single exposure

No data available.

Specific target organ toxicity - repeated exposure

Epidemiologic studies of workers in the carbon black producing industry in the U.S. and in Western Europe show no significant adverse health effect due to occupational exposure to carbon black.

[Carbon black]

Aspiration hazard

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No data available.

Further Toxicological Information:

In 1996 the International Agency for Research on Cancer (IARC) reevaluated carbon black as a group 2B carcinogen (possible human carcinogen), based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black. The effects were observed only in animals exposed to high concentrations of carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats have not demonstrated an association between carbon black and lung tumors. Moreover, a two-year cancer bioassay using a typical toner preparation containing carbon black demonstrated no association between toner exposure and tumor development in rats. Epidemiology studies of workers in the carbon black producing industries of North America and Western Europe do not demonstrate an association between carbon black and cancer, even in high exposure occupational settings. In addition, in its reevaluation of carbon black, IARC concluded that "there is inadequate evidence in humans for the carcinogenicity of carbon black. "Chronic over exposure to many dusts, including carbon black dust, may result in respiratory tract irritation and slight changes in lung function.

SECTION 12: Ecological information

Note: Data is based on components as noted. Product not tested.

12.1 Toxicity

Toxicity to fish:	LC50 - Danio rerio (zebra fish) - >1,000 mg/l - 96 h [Carbon black]
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - > 5,600 mg/l - 24 h (OECD Test Guideline 202) [Carbon black]
Toxicity to algae	static test EC50 - Desmodesmus subspicatus (green algae) - > 10,000 mg/l - 72 h (OECD Test Guideline 201) [Carbon black]

12.2 Persistence and degradability

Biodegradability This product is not biodegradable.

12.3 Bio-accumulative potential

No data available.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

R510 HF**12.6 Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13: Disposal considerations**13.1 Waste treatment methods**

All related waste material must be disposed/recycled/reclaimed in accordance with local, state and federal pollution and environmental control regulations.

SECTION 14: Transport information**14.1 DOT**

Not classified as hazardous for transport.
Not regulated.

14.2 IMDG

Not classified as hazardous for transport.
Not regulated.

14.3 IATA

Not classified as hazardous for transport.
Not regulated.

SECTION 15: Regulatory information**United States TSCA Inventory**

All components are on United States TSCA inventory or exempt from listing.

SARA 302 Components

None found.

SARA 313 Components

None known.

SARA 311/312 Hazards

None.

WHIMS Hazard Class

Non-controlled.

R510 HF**Massachusetts Right to Know Components**

Carbon black

CAS-No: 1333-86-4

Pennsylvania Right to Know Components

Carbon black

CAS-No: 1333-86-4

New Jersey Right to Know Components

Carbon black

CAS-No: 1333-86-4

California Prop. 65 Components

"Carbon black (airborne, unbound particles of respirable size)" (CAS: 1333-86-4) is a California Proposition 65 listed substance. Please note that all three listing qualifiers (airborne, unbound (not bound within a matrix), and respirable size (10 micrometers or less in diameter)) must be met for this substance to be considered a Proposition 65 substance. As contained within a thermal transfer ribbon, the carbon black is bound within a matrix.

SECTION 16: Other information**Further Information**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. This data is offered in good faith as typical values and not as a product specification. No warranty, either expressed or implied, is made. The recommended handling procedures are believed to be generally applicable, however, each user should review these recommendations in the specific content of the intended use. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose, and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. It should be used in conjunction with technical sheets but do not replace them. Thus, the information only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in any other manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity. DNP Imagingcomm America Corporation and its Affiliates shall not be held liable for any damage results from handling or from contact with the above product. Should new information become available regarding this product, DNP Imagingcomm America will update this safety data sheet as needed.

Preparation Information

Product evaluated under the US GHS format.

DNP Imagingcomm America Corp. Product Development and Process Improvement

Tel: 724-696-7500

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