SAFETY DATA SHEET

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

   PRODUCT NAME: DSR
   Company name: DAI NIPPON PRINTING CO., LTD.
   Address: 2-5-1, Hirosedai, Sayama, Saitama, 350-1328 JAPAN
   Department: Imaging Comumunications Operations
   Telephone: 04-2952-9758
   Emergency telephone: 04-2952-9758
   Fax: 04-2954-7945

   Intended purpose: thermal transfer ribbon

2. HAZARD IDENTIFICATION

   GHS CLASSIFICATION OF THE SUBSTANCE OR MIXTURE
   PHYSICAL HAZARDS: Not applicable
   HEALTH HAZARDS
     • Carcinogenicity: Not classified
       The carbon black included in thermal transfer ribbon is classified in group 2B by IARC.
       However, there are not the data which there is carcinogenicity as thermal transfer ribbon
   ENVIRONMENTAL HAZARDS: Not applicable
   *Not above mentioned hazard classification items; Not classified or Not classifiable.

   GHS LABEL ELEMENTS INCLUDING PRECAUTIONARY STATEMENTS
   SYMBOL: Not applicable
   SIGNAL WORD: Not applicable
   HAZARD STATEMENT: Not applicable
   PRECAUTIONARY STATEMENTS:
     【Prevention】
     • Do not handle until all safety precautions have been read and understood.
     • Use only outdoors or in well-ventilated area.
     • Do not eat, drink or smoke when using this product.
     • Do not use near fire.
     • Wear protective gloves/clothing and respiratory protection.
     • Wash hands thoroughly after handling.

3. Composition/Information on Ingredients

   SUBSTANCE/MIXTURE: mixture
   Thermal transfer ribbon
   Component                          Weight % (about)   CAS-Reg.NO.
   Polyethylene terephthalate film    79～87%           25038-59-9
   Thermal transfer ink              13～21%           -

   Thermal transfer ink
   Component                          Weight % (about)   CAS-Reg.NO.
   Carbon Black                       19～26%           1333-86-4
   Synthetic resin                   36～61%           Trade secret
   Wax                               15～31%           Trade secret
   Others                            2～6%             Trade secret

   HAZADOUS INGREDIENT: none
4. FIRST AID MEASURES

IF INHALED
- Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- If symptom turns worse or continuance, get medical advice/attention.

IF IN EYES
- Immediately rinse with fresh and a large amount of water.
- If eye irritation persists, get medical advice/attention.

IF ON SKIN
- Remove from skin with carefully
- Wash skin with water.
- If skin irritation occurs or feel unwell, get medical advice/attention.

IF SWALLOWED
- If possible, induce vomiting, rinse the patient mouth with water, and get medical advice/attention immediately.

5. FIRE-FIGHTING MEASURES

Extinguishing Media
CO₂, Water, Dry Chemicals, Foam

SPECIFIC EXTINCTION METHOD

Special Fire fighting Procedures
For large quantities (i.e. truckload or pallet) involved in a fire, firefighters should wear self-contained breathing apparatus and protective clothing.

Fire and Explosion Hazards
The product is not classified as flammable, but will burn if involved in a fire, forming smoke, and toxic fumes, gases and vapors.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: For large-scale spills involving dye or ribbon, ensure personal protection is worn (see Section 8).

Environmental Precautions: Do not release to sewer, surface water or ground water.

Method for Cleaning Up: Vacuum or sweep up materials and place in a disposal container. When sweeping, avoid raising dust. If a vacuum is used, motor should be rated as dust tight, and be non-sparking. Disposal should be subject to national, and local law.

7. HANDLING AND STORAGE

Handling: Avoid contact with skin, eye and clothing.
In case of contact, wash the contaminated area immediately.

Storage: Keep away from heat and flame. Keep in a cool and dry place.
Protect from sunlight. Keep out of the reach of children.

8. Exposure controls/personal protection

Exposure Guidelines: EU: None
UK Occupational exposure limits (carbon black): long-term exposure limit (8 h), 3.5mg/m³; short-term exposure limit (15 min), 7 mg/m³.

Engineering Controls: Good general ventilation is recommended.
Personal Protection Equipment(s):
The need for personal protective equipment should be based on a workplace risk assessment for the particular use. Gloves (e.g. nitrile or PVC) and eye protection are recommended if handling the ribbon directly. Where more extensive contact may occur, wear suitable protective clothing (e.g. apron, sleeves, boots). PPE should be to European (EN) standards. Consult manufacturers concerning breakthrough times. For the packaged ribbon, PPE is not usually required.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>Solid</td>
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</tr>
<tr>
<td>Colour</td>
<td>Black</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Slight Wax’s odor</td>
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</tr>
<tr>
<td>pH value</td>
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<tr>
<td>Viscosity</td>
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</tr>
<tr>
<td>Melting point</td>
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<tr>
<td>Boiling point</td>
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<tr>
<td>Ignition Temperature</td>
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<tr>
<td>Flashpoint</td>
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<td>Explosion limits</td>
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<td></td>
<td>upper N/A</td>
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<tr>
<td>Vapour pressure</td>
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<tr>
<td>Density</td>
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<tr>
<td>Solubility in water</td>
<td>insoluble</td>
<td></td>
</tr>
</tbody>
</table>

10. Stability and reactivity

Conditions to be avoided:
Conditions to avoid: heat and sunlight.

Substances to be avoided:
Strong acids and strong oxidizing agents

Hazardous decomposition products:
Thermal decomposition gives CO, CO₂, NOₓ.

Further information:
None

11. Toxicological information

Acute toxicity:
The ingredients are not classified for health effects, and so the product is not expected to be classified as hazardous.

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.

12. Ecological information
No information available.

13. Disposal considerations
Recycling and landfill are recommended for the industrial disposal for ink or ribbon. Disposal must be in accordance with current national and local regulations.

14. Transport information
Not classified as dangerous goods for transport.
No specific precautionary transport measures for safety reasons.
Storage conditions see item 7.

15. Regulatory information
Classification and labeling according to EC Directives

Classification Not classified
Symbol and indication of danger None
Risk phrases None
Safety phrases None

EU legislation
Dangerous Substances Directive (67/548/EEC)
Dangerous Preparations Directive (99/45/EC)
REACH Regulation (1907/2006)
Regulation (EC) No 1272/2008 on Classification, Labeling and Packaging of Substances and Mixtures
Chemical Agents Directive (98/24/EC)

UK legislation
Control of Substances Hazardous to Health Regulations 2002.

Guidance
COSHH Essentials: Easy steps to control chemicals; HSE Books 2003 (also available on the HSE web site).
Workplace Exposure Limits EH40.
16. **Other information**

References

Annex VI of Regulation 1272/2008 on *Harmonized Classification and Labeling for Certain Hazardous Substances*.

Supplier safety data sheets.


All specifications are to be created based on the information we can get at this time may be revised by new knowledge.

The content, the physico-chemical property and so on are not a guaranteed-performance.

Notes are usually aimed at handling. If special handling, usage, please Usage for safety measures.