SAFETY DATA SHEET

SECTION 1 - IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier
   Product Name: Histo-Clear II                   Product Number: HS-202

1.2 Relevant Identified Uses of the Substance/Mixture and Uses Advised Against
   Investigational research by professional users

1.3 Details of the Supplier of the Safety Data Sheet
   Manufacturer
   National Diagnostics
   305 Patton Drive
   Atlanta, GA 30036
   (404) 699-2121
   (800) 526-3867
   info@nationaldiagnostics.com

1.4 Emergency Telephone Number
   Chemtrec
   1-800 424-9300 (U.S. & Canada)
   01-703-527-3887 (outside U.S. & Canada)

SECTION 2 - HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture
   Classification according to Regulation (EC) No. 1272/2008 [EU-GHS/CLP]
   H226 - Flammable Liquids (Category 3)
   H304 - Aspiration Hazard (Category 1)
   H315 - Skin Corrosion/Irritation (Category 2)
   H317 - Skin Sensitizer (Category 1)
   H336 - May cause drowsiness or dizziness
   H411 - Chronic Hazards to the Aquatic Environment (Category 2)

2.2 Label Elements
   
   GHS LABEL ELEMENTS AND CLASSIFICATION
   
   DANGER
   H226 - Flammable liquid and vapor.
   H304 - May be fatal if swallowed and enters airways.
   H315 - Causes skin irritation.
   H317 - May cause an allergic skin reaction.
   H336 - May cause drowsiness or dizziness.
   H411 - Toxic to aquatic life with long lasting effects.
   P260 - Do not breathe dust/fumes/gas/mist/vapors/spray.
   P262 - Do not get into eyes, on skin or on clothing.
   P280 - Wear protective gloves/protective clothing/eye protection/face protection.
   P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
   P331 - Do NOT induce vomiting.
   P333+P313 - IF SKIN irritation or rash occurs: Get medical advice/attention.
   P370+P378 - In case of fire: Use a dry chemical fire extinguisher for extinction.

2.3 Other Hazards
   None found.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixture
   Chemical Names/Description
   Mixture of alkyl hydrocarbons and essential oils

Component List

<table>
<thead>
<tr>
<th>Component</th>
<th>% Comp.</th>
<th>CAS #</th>
<th>EC #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
SECTION 4 - FIRST AID MEASURES

4.1 Description of First Aid Measures

Inhalation
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion
Do not induce vomiting. If swallowed and the person is conscious, immediately give large amounts of water. Get medical attention.

Skin
Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eyes
Immediately flush eyes with plenty of water for at least fifteen minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

Inhalation
Aliphatic Hydrocarbons:
Headaches, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system effects, including death.

d-limonene:
May include dizziness, headaches, and nasal irritation.

Ingestion
Aliphatic Hydrocarbons:
Minimal toxicity by ingestion.

d-limonene:
May include nausea, vomiting, and headache.

Skin
Aliphatic Hydrocarbons:
Dermatitis may occur with frequent or prolonged contact.

d-limonene:
May include drying and redness (dermatitis) of the skin.

Eyes
Aliphatic Hydrocarbons:
Product is only slightly irritating to eye tissue, non injurious.

d-limonene:
May include redness, itching, and watering of the eyes.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

Unknown/not applicable

SECTION 5 - FIRE FIGHTING MEASURES

5.1 Extinguishing media
Dry powder, foam, carbon dioxide. (Water may be ineffective.)

5.2 Special Hazards Arising from the Substance/Mixture

Hazardous Combustion Products
Thermal decomposition products may include carbon monoxide, carbon dioxide, and hydrocarbons.

Hazardous Decomposition Products
None

Hazardous Polymerization
Will not occur under normal conditions of use (See Sections 10.4 & 10.5).
5.3 Advice for Firefighters
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

5.4 Further Information
No data available.

SECTION 6 - ACCIDENTAL RELEASE MEASURES
6.1 Personal Precautions
Wear appropriate protective equipment as specified in Section 8.

6.2 Environmental Precautions
Prevent discharge into the environment. Dike spills and stop leakage where practical. Do not allow material to enter drains.

6.3 Methods and Materials for Containment and Cleaning Up
Eliminate source of ignition. Ventilate area. Cover with absorbent material (soda ash) to confine spill and sweep or shovel into container. Close container tightly. Avoid breathing vapors.

6.4 References to Other Sections
For disposal information, see Section 13. For Protective clothing and equipment, see Section 8.

SECTION 7 - HANDLING AND STORAGE
7.1 Precautions for Safe Handling
Avoid contact and inhalation. Do not get in eyes, on skin, on clothing. Wash thoroughly after handling. Transfer methods should avoid static sparks. Use explosion proof ventilation.

7.2 Conditions for Safe Storage (including any incompatibles)
Keep in a tightly closed container, stored in a cooled, dry, ventilated area away from sources of heat or ignition. Protect from physical damage. Isolate from incompatible materials.

Incompatibles
- Aliphatic Hydrocarbons:
  Strong oxidizing agents.

- d-limonene:
  Avoid contact with strong acids, alkalis, or oxidizing agents.

7.3 Specific End Uses
Investigational research by professional users

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PRECAUTIONS
8.1 Control Parameters
Component: Aliphatic Hydrocarbons
ACGIH Threshold Limit Value (TLV): 300 ppm
OSHA Permissible Exposure Limit (PEL): None established

Component: d-limonene
ACGIH Threshold Limit Value (TLV): None established
OSHA Permissible Exposure Limit (PEL): None established

8.2 Exposure Controls
Engineering Controls
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source.

Respiratory Protection
If the exposure limit is exceeded, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus.

Eye Protection
Safety glasses.

Skin Protection
Wear protective gloves and clean body covering clothing.
SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical & Chemical Properties

a. Appearance: Clear and colorless
b. Odor: No data
c. Odor Threshold: N.A.
d. pH: N.A.
e. Melting/Freezing Point (°C): -55
f. Boiling point (°C): 162-182
g. Flash Point (°C): 40
h. Evaporation Rate: 0.3 (n-Bu Acetate=1)
i. Flammability: Combustible
j. Upper/Lower Flammability or Explosive Limits: LEL 1.2%; UEL 9.6%
k. Vapor Pressure: 2 mmHg @ 20 C
l. Vapor Density (Air = 1): 4.94
m. Relative Density: 0.75 kg/L @ 15.56 C
n. Water Solubility: Less than 0.01% @ 25 C
o. Partition Coefficient: n-octanol/water
p. Autoignition Temperature (°C): 292.78 (approximate)
q. Decomposition Temperature (°C): N.A.
r. Viscosity: 0.4-0.9 cSt @ 40 C
s. Explosive Properties: Combustible vapors
t. Oxidizing Properties: No Data

SECTION 10 - STABILITY AND REACTIVITY

10.1 Reactivity
Oxidizable liquid and vapor. Avoid ignition sources, oxidizers and strong acids.

10.2 Chemical Stability
Stable under normal conditions of use.

10.3 Possibility of Hazardous Reactions
Will not occur under normal conditions of use (See Sections 10.4 & 10.5).

10.4 Conditions to Avoid
Heat, sources of ignition.

10.5 Incompatible Materials
Aliphatic Hydrocarbons:
Strong oxidizing agents.

d-limonene:
Avoid contact with strong acids, alkalis, or oxidizing agents.

10.6 Hazardous Decomposition Products
None

SECTION 11 - TOXICOLOGICAL INFORMATION

Product LD50 Values
Oral Rat LD50 (mg/kg)
Minimal toxicity by ingestion.

Dermal Rabbit LD50 (mg/kg)
Minimal toxicity by skin contact.

Component Cancer List Status

<table>
<thead>
<tr>
<th>Component</th>
<th>NTP Carcinogen</th>
<th>IARC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aliphatic Hydrocarbons</td>
<td>No</td>
<td>None</td>
</tr>
<tr>
<td>d-limonene</td>
<td>No</td>
<td>None</td>
</tr>
</tbody>
</table>

Potential Health Effects

Inhalation
Aliphatic Hydrocarbons
High vapor/aerosol concentrations (greater than approximately 1000 ppm) are irritating to the eyes and the respiratory tract, may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system effects, including death.

d-limonene
Inhalation can cause nose, throat, and respiratory tract irritation. Prolonged exposure to high vapor or mist concentrations may cause dizziness, headaches, and nasal irritation.

Ingestion
Aliphatic Hydrocarbons
Minimal toxicity by ingestion, though small amounts of this product aspirated into the respiratory system during ingestion or vomiting may cause
mild to severe pulmonary injury, possibly progressing to death.

d-limonene
Ingestion may cause vomiting, headache, and other medical problems.

Skin
Aliphatic Hydrocarbons
Low order or toxicity. Frequent or prolonged contact may irritate and cause dermatitis. Skin contact may aggravate an existing dermatitis condition.

d-limonene
Repeated or prolonged contact can cause redness, irritation, and scaling of the skin (dermatitis). Normal care and personal hygiene should prevent skin effects.

Eyes
Aliphatic Hydrocarbons
Slightly irritating but does not injure eye tissue.

d-limonene
Eye irritation may occur with exposure to concentrated vapors or contact with product.

Carcinogenicity
Aliphatic Hydrocarbons
Not listed by NTP, IARC, or OSHA.

d-limonene
None of the components of this material are listed by NTP, OSHA, ACGIH, or IARC as a carcinogen or a suspected carcinogen.

Mutagenicity
Aliphatic Hydrocarbons
No information available.

d-limonene
No information available.

Reproductive Toxicity
Aliphatic Hydrocarbons
No information available.

d-limonene
No information available.

Teratogenic Effects
Aliphatic Hydrocarbons
No information available.

d-limonene
No information available.

Routes of Entry
Aliphatic Hydrocarbons
Inhalation or by skin contact.

d-limonene
May be absorbed through the skin, by inhalation, or by ingestion.

Target Organ Statement
Aliphatic Hydrocarbons
No information available.

d-limonene
No information available.

SECTION 12 - ECOLOGICAL INFORMATION
12.1 Toxicity

<table>
<thead>
<tr>
<th>COMPONENT: Aliphatic Hydrocarbons</th>
<th>Vertebrates</th>
<th>Invertebrates</th>
<th>Algae</th>
<th>Microorganisms</th>
</tr>
</thead>
</table>

5 of 7
Aquatic Toxicity (ppm unless otherwise noted)

**LC50 (fathead minnow):** 8.2 mg/L

**48-hour EL50 to Daphnia (calculated):** 4.5 mg/L

**72-hour EL50 for Selenastrum capricornutum (Pseudokirchneriella subcapitata):** 3.1 mg/L

**72-hour LL50 value for Tetrahymena pyriformis:** 15.41 mg/L

<table>
<thead>
<tr>
<th>Birds</th>
<th>Arthropods</th>
<th>Plants</th>
<th>Microorganisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Data</td>
<td>PNEC soil: 0.4 - 20.8 mg/kg soil</td>
<td>PNEC soil: 0.4 - 20.8 mg/kg soil</td>
<td>PNEC soil: 0.4 - 20.8 mg/kg soil</td>
</tr>
</tbody>
</table>

**COMPONENT: d-limonene**

<table>
<thead>
<tr>
<th>Birds</th>
<th>Arthropods</th>
<th>Plants</th>
<th>Microorganisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 (96hr fathead minnow): <strong>720ug/L</strong></td>
<td><strong>EC50 (48hrs, Daphnia) 0.36mg/L</strong></td>
<td><strong>EC50 (72hrs) 8mg/L</strong></td>
<td><strong>EC50 (3hr) 209mg/L</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Terrestrial Environment Toxicity (ppm unless otherwise noted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Data</td>
</tr>
</tbody>
</table>

**12.2 Persistence and Degradability**

**Aliphatic Hydrocarbons**

Biodegraded 77% after 28 days (readily biodegradable)

**d-limonene**

Readily biodegradable

**12.3 Bioaccumulative Potential**

**Aliphatic Hydrocarbons**

No Data

**d-limonene**

BCF is 1022 L/kg (calculated)

**12.4 Mobility in Soil**

**Aliphatic Hydrocarbons**

Calculated log Koc ~2

**d-limonene**

Koc of d-limonene (predicted): 1984 L/kg.

**12.5 Results of PBT and vPvB Assessment**

**Aliphatic Hydrocarbons**

Not PBT / vPvB

**d-limonene**

Not a PBT or vPvB

**12.6 Other Adverse Effects**

**Aliphatic Hydrocarbons**

No Data

**d-limonene**

No data

**SECTION 13 - DISPOSAL CONSIDERATIONS**

**13.1 Waste Treatment Methods**

Offer surplus or non-recyclable product to licensed disposal company. Disposal is subject to user compliance with applicable law and product characteristics at time of disposal. Dispose of packaging as product.

**SECTION 14 - TRANSPORT INFORMATION**

<table>
<thead>
<tr>
<th>ADR/RID</th>
<th>IATA</th>
<th>IMO</th>
<th>DOT</th>
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</thead>
<tbody>
<tr>
<td>1268</td>
<td>1268</td>
<td>1268</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14.2 Shipping Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petroleum Products N.O.S. (aliphatic and terpene hydrocarbons)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14.5 Environmental Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine pollutant</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14.6 Special Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>N.A.</td>
</tr>
</tbody>
</table>

14.1 UN Number

1268

14.3 Hazard Class

3

14.4 Packing Group

III

14.5 Environmental Hazards

N.A.

14.6 Special Precautions

N.A.
SECTION 15 - REGULATORY INFORMATION

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance/Mixture

United States

TSCA Regulatory Statement
All intentional ingredients are listed on the TSCA Inventory.

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Component</th>
<th>Fire</th>
<th>Pressure</th>
<th>Reactivity</th>
<th>Acute</th>
<th>Chronic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aliphatic Hydrocarbons</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>d-limonene</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Europe

EEC Regulatory
All intentional ingredients are listed on the European EINECS Inventory.

SECTION 16 - OTHER INFORMATION

Revisional Updates

5/29/2015 - Updated Sections 2.1 and 3.2
11/25/2013 - Updated Section 9
11/21/2013 - Updated Sections 2 and 3
5/29/2013 - Released Version 1.0

NFPA Codes

Health 1  Flammability 2  Reactivity 0

Dangers

Aliphatic Hydrocarbons
H226 - Flammable liquid and vapor.
H304 - May be fatal if swallowed and enters airways.
H315 - Causes skin irritation.
H336 - May cause drowsiness or dizziness.
H411 - Toxic to aquatic life with long lasting effects.

d-limonene
H226 - Flammable liquid and vapor.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H410 - Very toxic to aquatic life with long lasting effects.

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