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

1.1 Product Identifier
   Product Name: RNAscope® 2.5 LS Duplex AMP 3
   Product No: 322467

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Identified uses: For Research Use Only. Not for diagnostic use.

1.3 Details of the supplier of the safety data sheet
   Supplier: Advanced Cell Diagnostics
   Address: 7707 Gateway Blvd.
   Newark, CA 94560
   Tel: (510) 576-8800

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
   Classification (EC 1272/2008)
   Physical and Chemical: Not classified
   Human health: Repr. 1B – H360D
   Environment: Not classified


   The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

2.2 Label elements
   Contains: FORMAMIDE
   Label In Accordance with (EC) No. 1272/2008

   Signal word: Danger
   Hazard statements: H360D
   May damage the unborn child.

   Precautionary Statements:
   P201
   Obtain special instructions before use.
   P308+313
   IF exposed or concerned: Get medical advice/attention.
   P501
   Dispose of contents/container in accordance with national regulations.

   Supplemental Precautionary Statements:
   P202
   Do not handle until all safety precautions have been read and understood.
   P281
   Use personal protective equipment as required.
   P405
   Store locked up.
   P501
   Dispose of contents/container to...

   Supplemental label information:
   RCH002
   Restricted to professional users

2.3 Other Hazards
   Not classified as PBT/vPvB by current EU criteria.
SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Mixtures

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Concentration</th>
<th>CAS-No.</th>
<th>EC No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formamide</td>
<td>10 - 30%</td>
<td>75-12-7</td>
<td>200-842-0</td>
</tr>
<tr>
<td>Sodium Hydroxide</td>
<td>&lt; 1%</td>
<td>1310-73-2</td>
<td>215-185-5</td>
</tr>
<tr>
<td>Hydrochloric Acid</td>
<td>&lt; 1%</td>
<td>7647-01-0</td>
<td>231-595-7</td>
</tr>
</tbody>
</table>

Classification (EC 1272/2008)
- Repr. 1B – H360D
- Repr. Cat. 2;R61
- Skin Corr. 1A H314 C;R35
- STOT SE 3 – H335 Xi;R37

The full test for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: FIRST AID AND MEASURES

4.1 Description of first aid measures

**General information**

Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.

**Inhalation**

Move the exposed person to fresh air at once. Provide rest, warmth, and fresh air. Get medical attention if any discomfort continues. Perform artificial respiration if breathing has stopped. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen.

**Ingestion**

DO NOT INDUCE VOMITING! NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Rinse mouth thoroughly. Provide rest, warmth and fresh air. Get medical attention immediately!

**Skin Contact**

Remove affected person from source of contamination. Wash the skin immediately with soap and water. Get medical attention promptly if symptoms occur after washing.

**Eye Contact**

Remove victim immediately from source of exposure. Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes and get medical attention.

4.2 Most important symptoms and effects, both acute and delayed

**General information**

No specific information

4.3 Indication of any immediate medical attention and special treatment needed.

Treat Symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

5.1 Extinguishing Media

**Extinguishing Media**

This product is not flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.

5.2 Special hazards arising from the substance or mixture

**Hazardous combustion products**

Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

5.3 Advice for fire fighters

**Special Fire Fighting Procedures**

Cool containers exposed to flames with water until well after the fire is out. Move container from fire area if it can be done without risk. Dike and collect extinguishing water.

**Protective equipment for fire fighters**

Self contained breathing apparatus and full protective clothing must be worn in case of fire.
SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear protective clothing as described in Section 8 of this safety data sheet.

6.2 Environmental Precautions
Do not discharge into drains, water courses or onto the ground.

6.3 Methods and material for containment and cleaning up
Wear necessary protective equipment. Stop leak if possible without risk. DO NOT touch spilled material. Absorb in vermiculite, dry sand or earth and place into containers.

6.4 Reference to other sections
Wear protective clothing as described in Section 8 of this safety data sheet.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with eyes, skin and clothing. Ventilate well, avoid breathing vapors. Use approved respirator if air contamination is above accepted level.

7.2 Conditions for safe storage, including any incompatibilities
Store in tightly closed original container in a dry, cool and well-ventilated place. Keep in original container.

7.3 Specific end user(s)
The identified uses for this product are detained in Section 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>STD</th>
<th>TWA – 8 Hrs</th>
<th>STEL – 15 Min</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formamide</td>
<td>WEL</td>
<td>20 ppm</td>
<td>37 mg/m³</td>
<td>30 ppm 56 mg/m³</td>
</tr>
<tr>
<td>Hydrochloric Acid</td>
<td>WEL</td>
<td>1 ppm</td>
<td>2 mg/m³</td>
<td>3 ppm 8 mg/m³</td>
</tr>
<tr>
<td>Sodium Hydroxide</td>
<td>WEL</td>
<td>1 ppm</td>
<td>2 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

WEL = Workplace Exposure Limit

8.2 Exposure controls
Protective equipment

Engineering measures
Provide adequate general and local exhaust ventilation.

Respiratory Equipment
No specific recommendation made, but respiratory protection must be used if the general level exceeds the recommended occupational exposure limit.

Hand Protection
Use protective gloves.

Eye Protection
Use approved safety goggles or face shield.

Other Protection
Wear appropriate clothing to prevent any possibility of liquid contact and repeated or prolonged vapor contact.

Hygiene measures
DO NOT SMOKE IN WORK AREA! Wash hands at the end of each work shift and before eating, smoking and using the toilet. Wash promptly with soap & water if skin becomes contaminated. Promptly remove any clothing that becomes contaminated. When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties
Appearance: Clear liquid

9.2 Other information
Not available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
No specific reactivity hazards associated with this product.

10.2 Chemical stability
Stable under normal temperature conditions and recommended use.
10.3 Possibility of hazardous reactions
   Not determined.

10.4 Conditions to avoid
   Avoid head, flames and other sources of ignition. Avoid contact with strong oxidizers. Avoid contact with strong reducing agents.

10.5 Incompatible Materials
   Materials to avoid
   Strong oxidizing substances. Strong reducing agents.

10.6 Hazardous decomposition products
   Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
   Toxicological information
   This material is toxic.
   Health warnings
   INGESTION: May cause stomach pain or vomiting. INHALATION: May cause irritation to the respiratory system. SKIN CONTACT: May cause skin irritation/eczema. May cause sensitization by skin contact. EYE CONTACT: Irritating to eyes.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity
   There are no data on the ecotoxicity of this product.

12.1 Toxicity
   No data available.

12.2 Persistence and degradability
   No data available

12.3 Bioaccumulative potential
   Bioaccumulative potential
   No data available on bioaccumulation

12.4 Mobility in soil
   Mobility
   No data available

12.5 Results of PBT and vPvB assessment
   Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects
   Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS

General Information
   Waste is classified as hazardous waste. Dispose to licensed waste disposal site in accordance with the local Waste Disposal Authority.

13.1 Waste treatment methods
   Dispose of waste and residues in accordance with local authority requirements.

SECTION 14: TRANSPORT INFORMATION

14.1 UN Number
   Not applicable.

14.2 UN proper shipping name
   Not applicable.

14.3 Transport hazard class(es)
   ADR/RID/AND Class  Not classified for transportation.

14.4 Packing group
   Not applicable.

14.5 Environmental hazards
   Environmentally Hazardous Substance/Marine Pollutant
   No

14.6 Special precautions for user
   Not applicable

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
   Not applicable.
SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Environmental Listing

Statutory Instruments

Approved Code of Practice
Classification and Labelling of Substances and Preparations Dangerous for Supply. Safety Data Sheets for Substances and Preparations.

Guidance Notes
Workplace Exposure Limits EH40. Introduction to Local Exhaust Ventilation HS(G)37. CHIP for everyone HSG(108).

EU Legislation

15.2 Chemical Safety Assessment
No chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

Risk Phrases in Full
R34 Causes burns.
R35 Causes severe burns.
R37 Irritating to respiratory system/
R61 May cause harm to the unborn child.

Hazard Statements in Full
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.
H360D May damage the unborn child.

Disclaimer
This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company’s knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user’s responsibility to satisfy himself as to the suitability of such information for his own particular use.