I. IDENTIFICATION OF THE MIXTURE (PREPARATION) AND OF THE COMPANY/UNDERTAKING

1.1 PRODUCT IDENTIFIER
Product Name: Eclipse HD Heavy Duty Degreaser
Product Number: 396

1.2 RELEVANT IDENTIFIED USES OF THE MIXTURE AND USES ADVISED AGAINST
Water-based degreaser concentrate
Product intended for commercial and industrial use only.

1.3 DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET
Manufacturer:
Amano Pioneer Eclipse Corporation
P.O. Box 909
1 Eclipse Road
Sparta, NC 28675 USA
Telephone: +1 336 372 8080
Internet: www.pioneereclipse.com
E-mail: msds@pioneer-eclipse.com

1.4 EMERGENCY TELEPHONE NUMBER
For Chemical Emergency - Spill, Leak, Fire, Exposure or Accident. Call CHEMTREC Day or Night.
Within USA and Canada 1 800 424 9300 Outside USA and Canada: +1 703 527 3887 (collect calls accepted)

2. HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE MIXTURE (PREPARATION)
This preparation has been classified and labeled according to 1999/45/EC.

2.2 LABEL ELEMENTS

<table>
<thead>
<tr>
<th>EU Classification:</th>
<th>Hazard symbol:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classified as Corrosive</td>
<td></td>
</tr>
</tbody>
</table>

Risk Phrases:
R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.
R35- Causes severe burns.
R36/37/38- Irritating to eyes, respiratory system and skin.

Safety Phrases:
S1/2- Keep locked up and out of the reach of children.
S13- Keep away from food, drink and animal feeding stuffs.
S24/25- Avoid contact with skin and eyes.
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S45- In case of accident or if you feel unwell, seek medical advice immediately.

2.3 OTHER HAZARDS
No other hazards are known to the supplier.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1/3.2 MIXTURES

<table>
<thead>
<tr>
<th>Hazardous Ingredients</th>
<th>EC No.</th>
<th>Weight %</th>
<th>CAS No.</th>
<th>Symbol</th>
<th>R phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethylene glycol monobutyl ether</td>
<td>203-905-0</td>
<td>3 - 7</td>
<td>111-76-2</td>
<td>X(Harmful) X (irritant)</td>
<td>R20/21/22 R36/38</td>
</tr>
<tr>
<td>sodium carbonate</td>
<td>207-838-8</td>
<td>1 - 5</td>
<td>497-19-8</td>
<td>Xi (irritant)</td>
<td>R36</td>
</tr>
<tr>
<td>disodium metasilicate</td>
<td>229-912-9</td>
<td>1 - 5</td>
<td>6834-92-0</td>
<td>C (corrosive) Xi (irritant)</td>
<td>R34 R37</td>
</tr>
<tr>
<td>caustic soda</td>
<td>215-185-5</td>
<td>1 – 5</td>
<td>1310-73-2</td>
<td>Xi (Irritant)</td>
<td>R36/38</td>
</tr>
</tbody>
</table>

*See section 16 for the full text of R phrases*
4. FIRST AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES

Inhalation: If breathing is difficult: Remove to fresh air. Seek medical attention immediately.
Ingestion: Call a physician or poison control center immediately. DO NOT induce vomiting unless directing to do so by medical personnel. Never give anything by mouth to an unconscious person.
Skin contact: Immediately wash off with plenty of water for at least 15 minutes. (Remove any contaminated clothing and shoes.) Seek medical attention immediately.
Eye contact: Immediately wash out with water for at least 15 minutes. (If easy to do, remove contact lenses, if worn.) Seek medical attention immediately.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Inhalation: May be harmful if inhaled. May cause irritation and corrosive effects to nose, throat and respiratory tract.
Ingestion: Harmful if swallowed. May cause burns to mouth, throat and stomach.
Skin contact: Harmful in contact with skin. May cause permanent damage.
Eye contact: Harmful in contact with eyes. May cause permanent damage.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

No information available.

5. FIRE FIGHTING MEASURES

5.1 EXTINGUISHING MEDIA

Dry chemical, water spray, foam, carbon dioxide

5.2 SPECIAL HAZARDS ARISING FROM THE MIXTURE

Hazardous combustion products: None

5.3 ADVICE FOR FIRE FIGHTERS

Unusual fire and explosion hazards: Materials can splatter above 100°C/212°F.
Special firefighting procedures: Corrosive material (See Sections 8 & 10)

6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Refer to Section 8 for appropriate personal protective equipment.

6.2 ENVIRONMENTAL PRECAUTIONS

Keep spills and cleaning runoff out of sewers and open bodies of water.

6.3 METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

Small spills: Absorb spill on inert material (e.g. sand, earth) and dispose of as waste material in accordance with national and regional provisions.
Large spills: Keep spectators away. Floors may be slippery; use care to avoid falling. Neutralize spill area. Dike and contain spill with inert material (e.g. sand, earth). Transfer liquid to containers for recovery or disposal and solid diking material to separate containers for disposal.

6.4 REFERENCE TO OTHER SECTIONS: Refer to Section 8 of the SDS.

7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING

Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Use only in well-ventilated areas. Avoid breathing vapours or spray mists. Remove and wash contaminated clothing and footwear before re-use.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Storage temperature (Max. 60°C/140°F) (Min. 1°C/34°F). Keep from freezing. Keep container sealed when not in use. Keep out of reach of children.

7.3 SPECIFIC END USE(S): No information available
8. EXPOSURE CONTROL/PERSONAL PROTECTION

8.1 CONTROL PARAMETERS

Occupational Exposure limits:

<table>
<thead>
<tr>
<th>Component Name</th>
<th>Source / Date</th>
<th>Value / Units</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethylene glycol monobutyl ether</td>
<td>US (ACGIH) / 2005</td>
<td>20 ppm</td>
<td>8 HRS / TWA</td>
</tr>
<tr>
<td>ethylene glycol monobutyl ether</td>
<td>US (OSHA) / 2005</td>
<td>50 ppm</td>
<td>SKIN TWA</td>
</tr>
<tr>
<td>ethylene glycol monobutyl ether</td>
<td>EU (2000/39/EC)</td>
<td>20 ppm</td>
<td>SKIN 8 HRS/TWA</td>
</tr>
<tr>
<td>caustic soda</td>
<td>US (ACGIH) / 2005</td>
<td>2 mg/m³</td>
<td>ceiling STEL</td>
</tr>
<tr>
<td>caustic soda</td>
<td>US (OSHA)</td>
<td>2 mg/m³</td>
<td>8 HRS / PEL TWA</td>
</tr>
</tbody>
</table>

8.2 EXPOSURE CONTROLS

Engineering controls: Ensure adequate general ventilation.
Environmental exposure controls: No specific environmental exposure controls required.

PERSONAL PROTECTION

Respiratory protection: Respiratory protection should be worn when there is potential to exceed the exposure limit requirements or guidelines.
Hand protection: Rubber gloves recommended
Eye protection: Safety glasses recommended
Skin protection: If major exposure is possible, wear suitable protective clothing such as rubber boots, apron, etc.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Appearance: clear, dark, purple liquid
Odor threshold: N/E
Melting point/Freezing Point: -3 °C
Flash point: > 93°C
Upper/lower flammability/explosive limits: N/A
Vapor density: greater than air
Solubility: 100% soluble in water
Auto-ignition temperature: N/A
Viscosity: <5 centipoise @ 20°C
Oxidizing properties: Not an oxidizer

9.2 OTHER INFORMATION

VOC: 5%(as supplied), 1.04%(1:4), 0.58%(1:8), 0.16%(1:32), 0.08%(1:64)

10. STABILITY AND REACTIVITY

10.1 REACTIVITY: None known

10.2 CHEMICAL STABILITY: Stable under normal conditions.

10.3 POSSIBILITY OF HAZARDOUS REACTIONS: Product may react strongly with water. Care should be used if diluting; product should be slowly added to water.

10.4 CONDITIONS TO AVOID: None known.

10.5 INCOMPATIBLE MATERIALS: Strong acids, bases and oxidizing agents.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS: None known.

11. TOXICOLOGICAL INFORMATION
11.1 INFORMATION ON TOXICOLOGICAL EFFECTS

PREPARATION SUMMARY
Toxicity testing has not been completed on the mixture.

LOCAL EFFECTS
Skin contact: Corrosive. Can cause skin burns.
Eye Contact: Corrosive. Can cause skin burns.
Sensitization: None expected
Chronic effects: None expected

SPECIFIC EFFECTS
Carcinogenicity: None known
Reproductive effects: None known
Teratogenicity: None known
Mutagenicity: None known

COMPONENT SUMMARY *
disodium metasilicate CAS# 6834-92-0
LD50: (oral, rat) 1500-3200 mg/kg
Potential Health Effects
Eye: Corrosive. Causes eye burns
Skin: Corrosive. Causes skin burns.
Ingestion: Corrosive. Causes burns to mouth, esophagus, and stomach.
Inhalation: Dust corrosive to respiratory tract.
Chronic: No known chronic hazards
Carcinogenicity: Not listed as a carcinogen.

sodium carbonate CAS# 497-19-8
LD50: (oral, rat) 5000 mg/kg
Potential Health Effects
Eye: Causes irritation of the eyes.
Skin: Continuous contact may cause skin irritation.
Ingestion: May be harmful if swallowed. Symptoms may include nausea and vomiting.
Inhalation: May irritate the mucous membranes and upper respiratory tract.
Chronic: No data available.
Carcinogenicity: Not listed as a carcinogen.

ethylene glycol monobutyl ether CAS# 111-76-2
LD50: (Oral, rat) 470 mg/kg –1746 mg/kg
Potential Health Effects
Eye: May cause severe eye irritation.
Skin: May cause slight skin irritation with local redness. Repeated exposure may cause a burn
Ingestion: Moderate toxicity if swallowed. Causes irritation to the gastrointestinal tract.
Inhalation: May cause irritation to upper respiratory tract (nose and throat).
Chronic: Prolonged or repeated exposure can cause damage to the liver, kidneys, lymphoid system, blood and blood-forming organs.
Carcinogenicity: Not listed as a carcinogen.

caustic soda CAS# 1310-73-2
LD50: (Oral, rat) (50%soln) 220 mg/kg
Potential Health Effects
Eye: May cause irritation (possibly severe), chemical burns and eye damage.
Skin: May cause irritation (possibly severe) and chemical burns.
Ingestion: May cause irritation (possibly severe), chemical burns, nausea and vomiting.
Inhalation: May cause irritation (possibly severe), chemical burns and pulmonary edema.
Chronic: Chronic effects due to long-term irritation and over-exposure. May produce inflammation of the eyes, skin and mucous membranes.
Carcinogenicity: Not listed as a carcinogen

*Component data recorded from available sources pertaining to individual component CAS number.

12. ECOLOGICAL INFORMATION

PREPARATION SUMMARY
Ecological testing has not been completed on the mixture.

12.1 TOXICITY: No data available.

12.2 PERSISTANCE AND DEGRADABILITY: No data available.

12.3 BIOACCUMULATIVE POTENTIAL: No data available.
12.4 MOBILITY IN SOIL: No data available.
12.5 RESULTS OF PBT AND vPvB ASSESSMENT: No data available.
12.6 OTHER ADVERSE EFFECTS: No data available.

COMPONENT SUMMARY*

disodium metasilicate CAS# 6834-92-0
LC50, 96 hr Gambusia affinity 2320 ppm
LC50, 96 hr Daphnia magna 247 ppm
Environmental Fate: This material is not persistent in aquatic systems. Not expected to bioconcentrate.

sodium carbonate  CAS# 497-19-8
LC50, 96 hr Bluegill sunfish 300-320 mg/l
LC50, 96 hr Daphnia magna 265-565 mg/l
Environmental Fate: Inorganic substance. No significant toxicity to aquatic organisms is expected.

ethylene glycol monobutyl ether  CAS# 111-76-2
LC50, 96 hr bluegill (Lepomis macrochirus) 820 – 1490 mg/l
LC50, water flea (Daphnia magna) 835 mg/l
Environmental Fate: Material is readily biodegradable. Bioconcentration potential is low.

caustic soda CAS# 1310-73-2
LC50, 24 hr brook trout 25 ppm
EC50, Daphnia magna 100 ppm
Environmental Fate: This material is inorganic and not subject to biodegradation. Not expected to bioconcentrate.

*Component data recorded from available sources pertaining to individual component CAS number

13. DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS

Disposal of this material should be in accordance with local, regional and national regulations.

14. TRANSPORT INFORMATION

14.1 UN NUMBER: UN1760
14.2 UN PROPER SHIPPING NAME: Corrosive liquid, n.o.s. (contains disodium trioxosilicate)
14.3 TRANSPORT HAZARD CLASSES: 8
14.4 PACKING GROUP: II
14.5 ENVIRONMENTAL HAZARDS: N/A
14.6 SPECIAL PRECAUTIONS FOR USER:

IMDG
Emergency Schedules (EmS): Fire F-A, Spillage S-B
Stowage and Segregation: Category B. Clear of living quarters.
Marine Pollutant: none

ADR/RID
Class: 8
Item Number: 80
Classification Code: C9

14.7 TRANSPORT IN BULK ACCORDING TO ANNEX II OF MAPROL73/78 AND THE IBC CODE: N/A

*Package volumes < 1L are shipped as Limited Quantity; as permitted by hazard class and quantity limits.*

15. REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE MIXTURE

EINECS STATUS: Ingredients are included in the EINECS/ELINCS/NLP inventories.
NATIONAL REGULATIONS:
648/2004 - The surfactants contained in this preparation comply with the biodegradability criteria laid down in Regulation (EC) No. 648/2004 on detergents. Data to support this assertion are held at the disposal of the competent authorities of the Member states and will be made available to them, at their direct request or at the request of the detergent manufacturer.

No additional national regulations are known to the supplier.

15.2 CHEMICAL SAFETY ASSESSMENT: No information available.

16. OTHER INFORMATION

REVISION INFORMATION:

ABBREVIATIONS:
N/A = Not Applicable
N/E = Not Established
N/L = Not Listed

FULL TEXT OF R-PHRASES:
R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.
R34- Causes burns.
R35- Causes severe burns.
R36/37- Irritating to eyes and respiratory system.
R38- Irritating to the skin.

FULL TEXT OF S-PHRASES:
S1/2- Keep locked up and out of the reach of children.
S13-Keep away from food, drink and animal feeding stuffs.
S22-Do not breathe dust.
S24/25-Avoid contact with skin and eyes.
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.
S45-In case of accident or if you feel unwell, seek medical advice immediately.
S46- If swallowed, seek medical advice immediately and show this container or label.

DETERGENT/CLEANER LABELING (EC/648/2004):
(<5%) anionic surfactant, (<5%) Non-ionic surfactant, (<5%) EDTA, and (<5%) perfume

ISSUED BY:
Chemical/R&D Department
Amano Pioneer Eclipse Corporation