SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product identifier

- Chemical Name: Mixture
- Trade name: NAXAN®PLUS 221
- CAS No.: Mixture

Relevant identified uses of the substance or mixture and uses advised against

- Identified use(s): Surfactant
- Uses advised against: None

Details of the supplier of the safety data sheet

- Company Identification: Nease Co. LLC
- 10740 Paddys Run Road
- Harrison, OH 45030

- Telephone: (513) 738-1255
- Telephone (Product Information): (888) 762-7373
- Fax: (513) 587-2828
- E-Mail (competent person): techservice@neaseco.com

Emergency telephone number

- Emergency Phone No.: (513) 738-1255
- CHEMTREC 24 hr. (800) 424-9300

SECTION 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

OSHA HCS (29 CFR 1910.1200)

- Eye Dam. 1; Skin Irrit. 2; May form combustible dust concentrations in air.

Label elements

- Hazard Symbol: DANGER

Signal word(s)

Hazard statement(s)

- Causes serious eye damage.
- Causes skin irritation.
- May form combustible dust concentrations in air.

Precautionary statement(s)

- Wear eye/face protection.
- Wash hands and exposed skin after use.
- Keep work areas free of dust accumulation. Enclosed material handling equipment (conveyors, ventilation, precipitators, etc.) must be designed and maintained so as not to be a source of ignition.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical attention.
- IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical attention.
- For professional users only.

Other hazards

- Toxic to aquatic life. Harmful to aquatic life with long lasting effects. Not classified as PBT or vPvB.
SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous ingredient(s)</th>
<th>%W/W</th>
<th>CAS No.</th>
<th>Hazard statement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), catalytic reformer fractionator residue, low-boiling, sulfonated, sodium salts</td>
<td>&gt; 90</td>
<td>111163-74-7</td>
<td>Causes eye irritation. May form combustible dust concentrations in air.</td>
</tr>
<tr>
<td>C12-C15alcohol Ethoxylate (7EO)</td>
<td>&lt; 5%</td>
<td>68131-39-5</td>
<td>Causes serious eye damage. Very toxic to aquatic life. Harmful to aquatic life with long lasting effects.</td>
</tr>
<tr>
<td>1-octanol, 2-butyl</td>
<td>&lt;2%</td>
<td>3913-02-8</td>
<td>Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.</td>
</tr>
<tr>
<td>Water</td>
<td>&lt; 5</td>
<td>7732-18-5</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

Additional Information - Substances in the product which may present a health or environmental hazard, or which have been assigned occupational exposure limits, are detailed below.

- Ethylene Oxide (CAS No. 75-21-8) - May accumulate in the head space of drums.

SECTION 4: FIRST AID MEASURES

Description of first aid measures

Inhalation
Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing is laboured, administer oxygen. If breathing has stopped, apply artificial respiration.

Skin Contact
Wash affected skin with plenty of water. Continue to wash the affected area for at least 15 minutes. If irritation (redness, rash, blistering) develops, get medical attention.

Eye Contact
Immediately flush eyes for at least 15 minutes. Hold eye open and rinse slowly and gently with water. Continue rinsing. Get immediate medical attention.

Ingestion
Drink two glasses of water. Call a physician. If swallowed, and the victim is conscious and alert, induce vomiting immediately, as directed by medical personnel.

Most important symptoms and effects, both acute and delayed
None

Indication of any immediate medical attention and special treatment needed
None

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing media
-Suitable Extinguishing Media
Extinguish with waterspray, dry chemical, sand or carbon dioxide or foam.

-Unsuitable Extinguishing Media
None anticipated.

Special hazards arising from the substance or mixture
None anticipated.

Advice for fire-fighters
Fire fighters should wear complete protective clothing including self-contained breathing apparatus.
SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Put on protective equipment before entering danger area.

Environmental precautions
Do not allow to enter drains, sewers or watercourses.

Methods and material for containment and cleaning up
Sweep spilled substances into containers. Flush the contaminated area with large amounts of water. If possible prevent water running into sewers.

Reference to other sections
None

Additional Information
None

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling
Do not get in eyes. This product may contain trace levels of Ethylene oxide (CAS No. 75-21-8), which may accumulate in the head space of containers. Establish monitoring systems for exposure assessment to comply with OSHA standard 29 CFR 1910.1047.

Conditions for safe storage, including any incompatibilities
- Storage Temperature
  None assigned
- Incompatible materials
  Keep container tightly closed and dry.

Specific end use(s)
Surfactant

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>CAS No.</th>
<th>LTEL (8 hr TWA ppm)</th>
<th>STEL (ppm)</th>
<th>Note:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>PEL (OSHA)</td>
<td>TLV (ACGIH)</td>
<td>PEL (OSHA)</td>
</tr>
<tr>
<td>Ethylene Oxide*</td>
<td>75-21-8</td>
<td>1 ppm</td>
<td>1 ppm</td>
<td>5 ppm</td>
</tr>
</tbody>
</table>

* May accumulate in the headspace of drums. OSHA Action Level = 0.5 ppm as an 8-hour time-weighted average. Refer to OSHA 29 CFR 1910.1047.

Recommended monitoring method
NIOSH 1614

Exposure controls

Appropriate engineering controls
Not normally required.

Personal protection equipment

Eye/face protection
Wear protective eyewear (goggles, face shield, or safety glasses).

Skin protection (Hand protection/ Other)
The following to be used as necessary: Gloves (Neoprene or Natural rubber).

Respiratory protection
No personal respiratory protective equipment normally required. Avoid generation of mist. An approved dust mask should be worn if dust/mist is generated during handling.

Thermal hazards
Use gloves with insulation for thermal protection, when needed.
Environmental Exposure Controls
Do not allow to enter drains, sewers or watercourses.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Powder</td>
</tr>
<tr>
<td>Colour</td>
<td>Slightly tan</td>
</tr>
<tr>
<td>Odour</td>
<td>Hydrocarbon odor</td>
</tr>
<tr>
<td>Odour Threshold (ppm)</td>
<td>Not available</td>
</tr>
<tr>
<td>pH (Value)</td>
<td>7.5 - 10.5 (5% aqueous solution)</td>
</tr>
<tr>
<td>Melting Point / Freezing Point</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>100 (212° F)</td>
</tr>
<tr>
<td>Flash Point (°C)</td>
<td>&gt; 93.3 (&gt; 200° F)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive limit ranges</td>
<td>May form combustible dust concentrations in air.</td>
</tr>
<tr>
<td>Vapour Pressure (Pascal)</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapour Density (Air=1)</td>
<td>Not available</td>
</tr>
<tr>
<td>Density (g/ml)</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility (Water)</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility (Other)</td>
<td>Not available</td>
</tr>
<tr>
<td>Partition Coefficient (n-Octanol/water)</td>
<td>Not available</td>
</tr>
<tr>
<td>Auto Ignition Temperature (°C)</td>
<td>Not available</td>
</tr>
<tr>
<td>Decomposition Temperature (°C)</td>
<td>Not available</td>
</tr>
<tr>
<td>Kinematic Viscosity (cSt) @ 40°C</td>
<td>Not available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive.</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not oxidising.</td>
</tr>
</tbody>
</table>

Other information
Not available

SECTION 10: STABILITY AND REACTIVITY

Reactivity
Stable under normal conditions.

Chemical stability
Stable.

Possibility of hazardous reactions
None anticipated.

Conditions to avoid
Incompatible materials.

Incompatible materials
Keep away from oxidizing agents and Acids.

Hazardous Decomposition Product(s)
Carbon monoxide, Carbon dioxide

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes: Inhalation, Skin Contact, Eye Contact

Substances in preparations / mixtures
Distillates (petroleum), catalytic reformer fractionator residue, low-boiling, sulfonated, sodium salts (111163-74-7) - By analogy with similar materials:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Acute toxicity</th>
<th>Irritation/Corrosivity</th>
<th>Sensitization</th>
<th>Repeated dose toxicity</th>
<th>Carcinogenicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>C12-C15 alcohol Ethoxylate (7EO)</td>
<td>Oral: LD50 &gt; 5000 mg/kg</td>
<td>Causes eye irritation.</td>
<td>No information available</td>
<td>No information available</td>
<td>No information available</td>
</tr>
</tbody>
</table>

NTP
No.

IARC
No.

ACGIH
No.

OSHA
No.

NIOSH
No.

Mutagenicity
No information available

Toxicity for reproduction
No information available

C12-C15 alcohol Ethoxylate (7EO) (68131-39-5)

<table>
<thead>
<tr>
<th>Substance</th>
<th>Acute toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>C12-C15 alcohol Ethoxylate (7EO)</td>
<td>Oral: LD50 &gt; 5000 mg/kg, Dermal: LD50 &gt; 2000 mg/kg</td>
</tr>
</tbody>
</table>

Revision: 5 December 2019
Irritation/Corrosivity
Causes serious eye damage.

Sensitization
It is not a skin sensitiser.

Repeated dose toxicity
NOAEL: 433 mg/kg bw/day (Oral, 21 days)

Carcinogenicity
No information available

<table>
<thead>
<tr>
<th>NTP</th>
<th>IARC</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>NIOSH</th>
</tr>
</thead>
</table>

Mutagenicity
There is no evidence of mutagenic potential.

Toxicity for reproduction
NOAEL: >250 mg/kg bw/day (parental, F1 and F2 generations)

1-octanol, 2-butyl (3913-02-8)

Acute toxicity
Oral: LD50 = 26533-37434 mg/kg
Dermal: LD50 > 2000 mg/kg

Irritation/Corrosivity
None

Sensitization
It is not a skin sensitiser.

Repeated dose toxicity
NOAEL (Oral, 21 days) > 1 ml/kg bw/day (By analogy with similar materials)

Carcinogenicity
No information available

<table>
<thead>
<tr>
<th>NTP</th>
<th>IARC</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>NIOSH</th>
</tr>
</thead>
</table>

Mutagenicity
There is no evidence of mutagenic potential.

Toxicity for reproduction
NOAEL (Developmental Toxicity): >1000 mg/kg bw/day (By analogy with similar materials)

This product may contain trace levels of Ethylene oxide (CAS No. 75-21-8), which may accumulate in the head space of containers. Establish monitoring systems for exposure assessment to comply with OSHA standard 29 CFR 1910.1047. Ethylene oxide is a known human carcinogen by NTP and a suspected human carcinogen by ACGIH®.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity - Substances in preparations / mixture

Distillates (petroleum), catalytic reformer fractionator residue, low-boiling, sulfonated, sodium salts (111163-74-7)

Short term
No information available

Long Term
No information available

C12-C15 alcohol Ethoxylate (7EO) (68131-39-5)

Short term
EC50 (96 hour) = 0.48 mg/l (*Fathead minnow*)
EC50 (48 hour) = 0.40 mg/l (*Daphnia magna*)
EC50 (72 hour) = 0.85 mg/l (*Pseudokirchnerella subcapitata*)

Long Term
NOEC (30 days) = 0.28 mg/l (*Pimephales promelas*)

Persistence and degradability
Readily biodegradable.

Bioaccumulative potential
The product has low potential for bioaccumulation.

Mobility in soil
The product has low mobility in soil.

Results of PBT and vPvB assessment
Not classified as PBT or vPvB.

Other adverse effects
None known.

1-octanol, 2-butyl (3913-02-8)

Short term
LC50 (96 hour) = 0.48 mg/L (*Oncorhynchus mykiss*)
EC50 (48 hour) = 0.765 mg/L (*Daphnia magna*)
EC50 (72 hour) = 2.1 mg/L (*Pseudokirchnerella subcapitata*)
EC0 (3 hour) > 1000 mg/L (Activated sludge)

Long Term
NOEC (21 days) = 14 µg/L (*Daphnia magna*) (By analogy with similar materials)

Persistence and degradability
Readily biodegradable.
Bioaccumulative potential
The product has low potential for bioaccumulation.

Mobility in soil
The product is predicted to have low mobility in soil.

Results of PBT and vPvB assessment
Not classified as PBT or vPvB.

Other adverse effects
None known.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods
Disposal should be in accordance with local, state or national legislation. Consult an accredited waste disposal contractor or the local authority for advice.

Additional Information
None known.

SECTION 14: TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>Land transport (U.S. DOT)</th>
<th>Sea transport (IMDG)</th>
<th>Air transport (ICAO/IATA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>Proper Shipping Name</td>
<td>Not classified as dangerous for transport.</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>Packing group</td>
<td></td>
</tr>
<tr>
<td>Hazard label(s)</td>
<td>Environmental hazards</td>
<td></td>
</tr>
<tr>
<td>Special precautions for user</td>
<td>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 15: REGULATORY INFORMATION

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

TSCA (Toxic Substance Control Act) - Inventory Status: On active TSCA list

Canada Domestic Substance List (NDSL/DSL)
- Listed NDSL: Distillates (petroleum), catalytic reformer fractionator residue, low-boiling, sulfonated, sodium salts
- Listed DSL: C12-C15alcohol Ethoxylate (7EO), 1-octanol, 2-butyl

Designated Hazardous Substances and Reportable Quantities (40 CFR 302.4):

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Typical %wt.</th>
<th>RQ (Pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>-----</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

SARA 311/312 - Hazard Categories:
- Fire
- Sudden Release
- Reactivity
- Immediate (acute)
- Chronic (delayed)

SARA 313 - Toxic Chemicals (40 CFR 372):

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Typical %wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>-----</td>
<td>&lt;5%</td>
</tr>
</tbody>
</table>

SARA 302 - Extremely Hazardous Substances (40 CFR 355):

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Typical %wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>-----</td>
<td>---</td>
</tr>
</tbody>
</table>

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 3, 11, 12, 15

Date of preparation: December 5, 2019
Additional Information:

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