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Section 1. Identification

1.1 Product Identifier 2475

Product Name OPTOMER 2475 (N-VINYL-2-PYRROLIDINONE)

CAS Number 88-12-0

REACH Registration No 01-2119498301-39-XXXX

Molecular Formula $\text{CH}_2 = \text{CHNCOCH}_2 \text{CH}_2 \text{CH}_2 = 111.14$

1.2 Relevant identified uses of the substance or mixture & uses advised against

Uses of Material Chemical for industrial and laboratory use. Not suitable for domestic use.

1.3 Supplier Vickers Laboratories Ltd



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1.4 Emergency Telephone (08:00-16:30) +44(0) 113 2362811 (24hr) 112 (Have this document to hand)

Section 2. Hazards Identification

2.1 Classification of the substance or mixture

Classification according to regulation 1272/2008/EC

| | |
|--|--|
| Acute toxicity, category 4 (oral) | H302: Harmful if swallowed. |
| Acute toxicity, category 4 (dermal) | H312: Harmful in contact with skin. |
| Acute toxicity, category 4 (inhalation) | H332: Harmful if inhaled. |
| Serious eye damage/irritation, category 1 | H318: Causes serious eye damage. |
| Carcinogenicity, category 2 | H351: Suspected of causing cancer. |
| Spec target organ tox - single, category 3 | H335: May cause respiratory irritation. |
| Spec target organ tox - repeat, category 2 | H373: May cause damage to organs through prolonged or repeated exposure. |

2.2 Label elements

Labelling according to regulation 1272/2008/EC

Signal word Danger

Hazard Pictograms



Hazard Statements Suspected of causing cancer. Harmful if swallowed, inhaled and in contact with skin. May cause damage to organs through prolonged or repeated exposure. May cause respiratory irritation. Causes serious eye damage.

Precautionary Statements Obtain special instructions before use. Avoid release to the environment. Wear protective gloves / protective clothing / eye protection / face protection. IF exposed or concerned: Get medical advice/attention.

Section 3. Composition

3.1 Substances

| Component | CAS No. | EEC No. | REACH No. | Conc w/w | CLP Classification (1272/2008/CE) |
|-----------------------|---------|-----------|-----------------------|----------|---|
| N-Vinyl-pyrrolidinone | 88-12-0 | 201-800-4 | 01-2119498301-39-XXXX | >99.7% | Acute Tox. 4 (O), Acute Tox. 4 (D), Acute Tox. 4 (I), Eye Dam. 1, Carc. 2, STOT SE 3 (I), STOT RE 2 |

Section 4. First Aid

4.1 Description of first aid measures

| | |
|--------------------------------------|---|
| Eyes | Irrigate thoroughly with plenty of water for at least 10 minutes, holding the eye open. OBTAIN MEDICAL ATTENTION. |
| Skin | Wash off skin thoroughly with water. Remove contaminated clothing immediately and wash before re-use. |
| Inhalation | Remove from exposure. Keep warm and at rest. If there is difficulty in breathing give oxygen if available. If breathing stops or shows signs of failing, apply artificial resuscitation. OBTAIN MEDICAL ATTENTION URGENTLY. |
| Ingestion | If conscious give plenty of water to drink. If there is difficulty in breathing give oxygen if available. If breathing stops or shows signs of failing, apply artificial resuscitation. OBTAIN MEDICAL ATTENTION URGENTLY. |
| Personal protection for first aiders | Wear protective gloves / eye protection. |

4.2 Most important symptoms and effects, both acute & delayed.

No further relevant information available.

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

No further relevant information available.

Section 5. Fire Fighting

5.1 Extinguishing media

| | |
|---------------------|--|
| Extinguishing Media | Alcohol resistant foam, dry powder, or carbon dioxide. Use water spray to keep fire exposed containers cool. |
| Unsuitable Media | Do not use water jet. |

5.2 Special hazards arising from the substance or mixture

| | |
|---------|------------------------------------|
| Hazards | Vapour-air mixtures are explosive. |
|---------|------------------------------------|

5.3 Advice for firefighters

| | |
|-------------------------|--|
| Advice for firefighters | Evacuate area immediately. Keep up wind. Avoid exposure to toxic vapours and fumes. Fire-fighters should wear protective clothing and breathing apparatus. |
|-------------------------|--|

Section 6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

| | |
|---------------------|---|
| Personal Protection | Ensure no sources of ignition. Avoid breathing vapour. Use approved personal protective equipment. Evacuate area immediately. Do not allow general use of area until it is safe to do so. |
|---------------------|---|

6.2 Environmental precautions

Environmental Keep material out of sewers, storm drains, surface waters and soil. Notify the Environmental Agency and local Environmental Health Officer if major spillage occurs.

6.3 Methods and material for containment and cleaning up

Major Spillage Contain and absorb on inert material. Transfer absorbent to salvage container for removal. Wash area down with copious amounts of water.

Minor Spillage Wash area down with copious amounts of water.

6.4 Reference to other sections

See section 8.2 for information on protective equipment and section 13 for information on disposal.

Section 7. Storage & Handling

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Do not breath vapours. Do not allow to contaminate clothing.

Ensure Local Exhaust Ventilation maintains vapour concentrations below the recommended limits.

7.2 Conditions for safe storage, including any incompatibilities

Well ventilated, cool, dry storage . Keep containers closed when not in use. Keep well separated from acids and peroxides. Ensure temperature does not reach more than 40C

7.3 Specific end use(s)

See section 1.2.

Section 8. Workplace Exposure & Personal Protection

8.1 Control parameters

| Component | CAS No | Concentration | Workplace Exposure Limits | |
|-----------------------|---------|---------------|---------------------------|--------------------------|
| | | | Long Term (8hr TWA) | Short Term 15min period) |
| N-Vinyl-pyrrolidinone | 88-12-0 | >99.7% | - | - |

Exposure data source(s) DNEL: Derived No Effect Level.
DNEL: Worker: Long term exposure - Systemic effects, inhalation: 0.1mg/m3

8.2 Exposure controls

Respiratory Protection Use L.E.V. or natural ventilation to maintain vapour concentrations below exposure limits. If not, use a well maintained chemical cartridge organic vapour respirator, or use self contained breathing apparatus.

Hand Protection Use solvent resistant gloves.

Eye Protection Use tightly fitting chemical splash proof glasses or goggles.

Skin Protection Avoid contact with skin. If skin contact or contamination of clothing is likely, protective clothing must be worn.

Special Hazards No special precautions required.

Section 9. Physical & Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance Colourless liquid or frozen mass.
Odour Characteristic.
pH 9 @ 20°C solution.
Boiling Point 218°C
Melting Point 13°C
Flash Point 95°C (Closed cup)
Upper Flammable Limit 10%
Lower Flammable Limit 1.4%

| | |
|----------------------|------------------------------|
| Auto Ignition | 240°C |
| Explosive Properties | Slight. |
| Oxidising Properties | No. |
| Vapour Pressure | 0.09mmHg @ 20°C |
| Relative Density | 1.0430 |
| Water Solubility | Completely soluble in water. |

9.2 Other information

No data available.

Section 10. Stability & Reactivity

| | |
|---|---|
| 10.1 Reactivity | No data available. |
| 10.2 Chemical Stability | Stable under normal conditions |
| 10.3 Possibility of hazardous reactions | No data available. |
| 10.4 Conditions to Avoid | Temperatures above 40C. |
| 10.5 Incompatible Materials | Acids and free radical-formers eg peroxides. |
| 10.6 Hazardous Decomposition Products | Burning will produce toxic fumes of NOx, carbon monoxide and/or carbon dioxide. |

Section 11. Toxicological Information

11.1 Information on toxicological effects

| | |
|----------------------|---|
| Eyes | Both the vapour and liquid may, cause conjunctival irritation and corneal damage. |
| Skin | Unlikely to be an irritant on brief or occasional exposure. May be absorbed through the skin. Unlikely to be absorbed across the skin in harmful amounts. |
| LD50 Skin | 1043mg/kg Rat |
| Ingestion | Moderately toxic by ingestion. |
| LD50 Oral | 1022mg/kg Rat |
| Inhalation | Exposure to vapour concentrations above the occupational exposure limits will produce irritation of the eyes, nose, throat and respiratory tract. Danger of serious damage to health by prolonged exposure. |
| LD50 Inhalation | 3.07g/m3 Rat (4 hours) |
| TCLo | Not available |
| Carcinogenicity | Must be considered to have carcinogenic properties. |
| Mutagenicity | No mutagenic effects with or without metabolic activation. |
| Reproductive Effects | None identified. |

Section 12. Ecological

| | |
|---------------------------------------|--|
| 12.1 Toxicity | Readily biodegradable, DOC reduction >70% elimination. Toxicity to fish [oncorhynchus mykiss] 913mg/l/96hr: Daphnae [acute] EC/LC50 [48hr], 45mg/l : Algae EC/LC50 [72hr] 780mg/l : Bacteria EC/LC50 [17hr] 4800 mg/l. |
| LC50 Algal | Not available |
| LC50 Crustacea | 45mg/l Daphnia magna (48 hours) |
| LC50 Fish | 976mg/l Rainbow Trout (72 hours) |
| 12.2 Persistence and degradability | Product is biodegradable. |
| 12.3 Bioaccumulative potential | Not expected to bioaccumulate. |
| 12.4 Mobility in soil | No data available. |
| 12.5 Results of PBT & vPvB assessment | Assessment not required. |
| 12.6 Other adverse effects | None known at present. |

Section 13. Disposal Considerations

13.1 Waste treatment methods

| | |
|------------------------|---|
| Disposal Methods | Dispose of in a licensed incinerator for organic solvents. Do not dispose of as domestic waste. |
| Contaminated Packaging | Use a licensed waste disposer. |


Section 14. Transport Information

| | |
|-----------------------------------|----------------------------------|
| 14.1 UN Number | Non-restricted |
| 14.2 Proper Shipping Name | Non-restricted |
| 14.3 Transport classes | |
| UN classification | None |
| Subsidiary hazard(s) | None |
| Transport category | None |
| ADR Hazard ID | Non-restricted |
| Tunnel Restriction Code | Non-restricted |
| 14.4 Packing Group | None |
| 14.5 Environment hazards | See section 12. |
| 14.6 Special precautions for user | No special precautions required. |
| 14.7 Transport in bulk | Not transported in bulk. |

Section 15. Regulatory Information

15.1 Safety, health and environment regulations specific for substance/mixture.

Classification, Labeling & Packaging of Substances & Mixtures Regulations (1272/2008/CE)

| | |
|--------------------------|---|
| Classification | Acute toxicity, category 4 (oral); Acute toxicity, category 4 (dermal); Acute toxicity, category 4 (inhalation); Serious eye damage/irritation, category 1; Carcinogenicity, category 2; Spec target organ tox - single, category 3; Spec target organ tox - repeat, category 2 |
| Signal word | Danger |
| Hazard Pictograms |  |
| Hazard Statements | H351, H302+H312+H332, H373, H335, H318 Suspected of causing cancer. Harmful if swallowed, inhaled and in contact with skin. May cause damage to organs through prolonged or repeated exposure. May cause respiratory irritation. Causes serious eye damage. |
| Precautionary Statements | P201, P273, P280, P308+P313 Obtain special instructions before use. Avoid release to the environment. Wear protective gloves / protective clothing / eye protection / face protection. IF exposed or concerned: Get medical advice/attention. |

15.2 Chemical safety assessment

Assessment not required.

Section 16. Other Information

The information contained in this document only covers the hazards presented by this material, it DOES NOT constitute a workplace risk assessment. See sections 11 for toxicological information and section 12 for ecological information.

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