|                      | COMPOS   | SITE ENVISI  | ONS MOD   | EL # 1164                                    |  |  |
|----------------------|--|--|---|--|--|--|
| SAI                  | FETY DATA SHEET  |  |   | $\sim$                                       |  |  |
| NO                   | ROX® AZOX  |  |   | UNITED INITIATORS                            |  |  |
| Mate<br>Spec<br>Orde | erial no.<br>cification <b>185444</b><br>er Number   | Version<br>Revision date<br>Print Date<br>Page                                 | 2.0 / US<br>04/14/2015<br>04/14/2015<br>1 / 15                                | driving your success                         |  |  |
| 1.                   | Identification   |  |   |  |  |  |
| 1.1.                 | Product identifier   |  |   |  |  |  |
|                      | Trade name   | NOROX® AZOX  |   |  |  |  |
| 1.2.                 | Recommended use of t   | the chemical and restrict  | ons on use  |  |  |  |
|                      | Relevant applications identified   | polymerization initiator   |   |  |  |  |
| 1.3.                 | Details of the supplier  | of the safety data sheet   |   |  |  |  |
|                      | Company  | United Initiators, Inc.<br>334 Phillips 311 Rd.<br>Helena, AR 72342-903<br>USA | 3   |  |  |  |
|                      | Telephone  | 870-572-2935   |   |  |  |  |
|                      | Telefax  | 870-572-1416   |   |  |  |  |
|                      | Email address  | Cs-initiators.nafta@uni  | ted-in.com  |  |  |  |
| 1.4.                 | 24 HOUR EMERGENCY  | TELEPHONE NUMBERS  |   |  |  |  |
|                      | CHEMTREC - US &<br>CANADA:   | 800-424-9300   |   |  |  |  |
|                      | CHEMTREC<br>INTERNATIONAL:   | +1 703-527-3887 <b>(coll</b>   | ect calls accepted)   |  |  |  |
|                      | Product Regulatory<br>Services   | : 800-231-2702   |   |  |  |  |
| 2.                   | Hazards identification   |  |   |  |  |  |
| 2.1.                 | Classification of the substance or mixture<br>Classification according to Begulation 29CEB 1910,1200                               |  |   |  |  |  |
|                      | Flammable liquids<br>Oxidizing liquids<br>Organic peroxides<br>Acute toxicity (Inhalation)<br>Skin corrosion<br>Serious eve damage |  | Category 4<br>Category 1<br>Type D<br>Category 3<br>Category 1A<br>Category 1 | H227<br>H271<br>H242<br>H331<br>H314<br>H318 |  |  |

US-GHS(P27/001) / 14.04.2015 16:48

Serious eye damage Skin Sensitisation

Reproductive toxicity

(Respiratory system)

Label elements

Statutory basis Symbol(s)

2.2.

Specific target organ toxicity - single exposure

Classification according to Regulation 29CFR 1910.1200

Category 1

Category 2

Category 3



H317

H361

H335

| SAFETY DAT                                    | A SHEET             |  |  | 2  |
|---|---------------------|--|--|--|
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| Signal word                                   |                     | Danger   |  |  |
| Hazard stater                                 | nent                | H227 - Combustible liquid.<br>H242 - Heating may cause a fii<br>H271 - May cause fire or explo<br>H314 - Causes severe skin bui<br>H317 - May cause an allergic s<br>H318 - Causes serious eye da<br>H331 - Toxic if inhaled.<br>H335 - May cause respiratory i<br>H361 - Suspected of damaging  | re.<br>sion; strong oxidiser.<br>rns and eye damage.<br>kin reaction.<br>mage.<br>rritation.<br>g fertility or the unborn o  | shild.   |
| Precautionary<br>Prevention                   | / statement:        | P201 - Obtain special instruction<br>P202 - Do not handle until all s<br>P210 - Keep away from heat/s<br>P220 - Keep/Store away from to<br>P221 - Take any precaution to<br>P234 - Keep only in original co<br>P261 - Avoid breathing dust/ fu<br>P264 - Wash skin thoroughly a<br>P271 - Use only outdoors or in<br>P272 - Contaminated work clot<br>P280 - Wear protective gloves/<br>P283 - Wear fire/ flame resista  | ons before use.<br>afety precautions have<br>parks/open flames/hot s<br>clothing/ combustible m<br>avoid mixing with comb<br>ntainer.<br>Ime/ gas/ mist/ vapours.<br>fter handling.<br>a well-ventilated area.<br>hing should not be allow<br>protective clothing/ eye<br>nt/ retardant clothing.  | been read and understood.<br>surfaces No smoking.<br>aterials.<br>pustibles.<br>/ spray.<br>wed out of the workplace.<br>e protection/ face protection.  |
| Precautionary<br>Reaction                     | / statement:        | P301 + P330 + P331 - IF SWA<br>P303 + P361 + P353 - IF ON S<br>clothing. Rinse skin with water/<br>P304 + P340 + P310 - IF INHA<br>comfortable for breathing. Imm<br>P305 + P351 + P338 + P310 -<br>minutes. Remove contact lense<br>Immediately call a POISON CE<br>P306 + P360 - IF ON CLOTHII<br>with plenty of water before rem<br>P308 + P313 - IF exposed or c<br>P333 + P313 - If skin irritation of<br>P363 - Wash contaminated clo<br>P370 + P378 - In case of fire: U<br>or carbon dioxide to extinguish<br>P371 + P380 + P375 - In case<br>fire remotely due to the risk of | LLOWED: Rinse mouth<br>SKIN (or hair): Take off i<br>shower.<br>LED: Remove person t<br>ediately call a POISON<br>IF IN EYES: Rinse caur<br>es, if present and easy t<br>ENTER or doctor/ physic<br>NG: rinse immediately of<br>oving clothes.<br>oncerned: Get medical<br>or rash occurs: Get medical<br>occurs: Get medical | n. Do NOT induce vomiting.<br>immediately all contaminated<br>o fresh air and keep<br>CENTER or doctor/ physician.<br>tiously with water for several<br>to do. Continue rinsing.<br>cian.<br>contaminated clothing and skin<br>advice/ attention.<br>dical advice/ attention.<br>ol-resistant foam, dry chemical<br>quantities: Evacuate area. Fight |
| Precautionary<br>Storage                      | / statement:        | P403 + P233 - Store in a well-v<br>P405 - Store locked up.<br>P410 - Protect from sunlight.<br>P411 - Store at temperatures r<br>P235 - Keep cool.<br>P420 - Store away from other r   | ventilated place. Keep o<br>not exceeding 38°C (100<br>materials.  | container tightly closed.<br>D°F).   |
| Precautionary<br>Disposal                     | v statement:        | P501 - Dispose of contents/ co   | ntainer to an approved   | waste disposal plant.  |
| 2.3. Other haz<br>None kno                    | <b>zards</b><br>wn. |  |  |  |

## 3. Composition/information on ingredients

2,4-Pentanedione, peroxide

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| CAS-No. 37187-22-7<br>Organic peroxides<br>Eye irritation<br>Skin Sensitisation   |  |  | Type D<br>Category 2A<br>Category 1   |
| <ul> <li>Phlegmatizers</li> </ul>   | 52%  | 62%  |   |
| CAS-No. Proprietary<br>Flammable liquids<br>Acute toxicity (Inhalation)<br>Skin irritation<br>Eye irritation<br>Specific target organ toxi<br>Reproductive toxicity | city - single exposure (Respiratory            | v system)                                      | Category 4<br>Category 3<br>Category 2<br>Category 2A<br>Category 3<br>Category 2 |
| Hydrogen peroxide   | 17%  | G - 18%  |   |
| CAS-No. 7722-84-1<br>Oxidizing liquids<br>Acute toxicity (Oral)<br>Skin corrosion<br>Serious eye damage<br>Specific target organ toxi<br>Chronic aquatic toxicity   | city - single exposure (Respiratory            | y system)                                      | Category 1<br>Category 4<br>Category 1A<br>Category 1<br>Category 3<br>Category 3 |
| <ul> <li>2,4-Pentanedione</li> </ul>  | 1%   | - 5%   |   |
| CAS-No. 123-54-6<br>Flammable liquids<br>Acute toxicity (Oral)<br>Acute toxicity (Inhalation)<br>Acute toxicity (Dermal)  |  |  | Category 3<br>Category 4<br>Category 3<br>Category 3                              |

#### Other information

This material is classified as hazardous under OSHA regulations.

#### 4. First aid measures

#### 4.1. Description of first aid measures

#### Inhalation

If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If unconscious, evaluate the need for artificial respiration. Get immediate medical attention.

### Skin contact

Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Obtain medical attention immediately if symptoms occur. Wash clothing before reuse.

#### Eye contact

In case of contact, immediately flush eyes with plenty of water. Obtain medical attention if irritation develops.

#### Ingestion

If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

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

### Symptoms

None known

# **4.3.** Indication of any immediate medical attention and special treatment needed None known.

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#### 5. Fire-fighting measures

#### 5.1. Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide., Dry Chemical combined with peroxide may reignite fire., Light water additives may be particularly effective at extinguishing peroxide fires.

Unsuitable extinguishing media: High volume water jet.

#### 5.2. Special hazards arising from the substance or mixture

The heat of decomposition of the peroxides adds to the heat of the fire. Dry chemical fire extinguishing agent may catalyze the decomposition.

#### 5.3. Advice for firefighters

If dry chemical is used to extinguish a peroxide fire, the extinguished area must be thoroughly wetted down with water to prevent reignition.

As in any fire, wear self-contained positive-pressure breathing apparatus and full protective gear.

Containers near the source of fire should be cooled with a water spray to prevent contents from reaching decomposition temperature.

#### 6. Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Wear a self-contained breathing apparatus and appropriate personal protective equipment. (See Section 8 - Exposure Controls/Personal Protection.) Remove all sources of ignition. Ventilate the area.

#### 6.2. Environmental precautions

Obey relevant local, state, provincial and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil.

#### 6.3. Methods and material for containment and cleaning up

Dike spill to prevent runoff from entering drains, sewers, streams, etc. Wet spilled material with water and absorb with an inert absorbent material such as perlite, vermiculite, or sand. Sweep up using non-sparking tools and place in a clean polyethylene drum or a polyethylene pail. DO NOT place into a steel container, lined or unlined, as decomposition may occur. Treat any contaminated cardboard packaging as hazardous waste. Wet container with additional water prior to sealing. Use absorbent/absorbent material to solidify liquids. Clean up promptly by sweeping or vacuum. Wear protective equipment, including eye protection, to avoid exposure (see Section 8 for specific handling precautions).

#### 7. Handling and storage

#### 7.1. Precautions for safe handling

Rotate stock using the oldest material first. Avoid contact with skin, eyes and clothing. Use PPE as specified in section 8. Keep containers closed to prevent contamination. Keep away from sources of heat, sparks, or flame. Do not add to hot solvents or monomers as a violent decomposition and/or reaction may result. When using spray equipment, never spray raw peroxide onto curing or into raw resin or flues. Keep peroxide in its original container. DO NOT USE NEAR FOOD OR DRINK. Wash thoroughly after handling. Protect from contamination. Keep tightly sealed in original packing. Risk of decomposition. Wash thoroughly after handling.

#### 7.2. Conditions for safe storage, including any incompatibilities

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#### Storage

The stability of peroxide formulations us directly related to the shipping and storage temperature history. Cool storage at 80° F (27°C) or below is recommended for longer shelf life and stability. Prolonged storage at elevated temperatures of 100° F (38°C) and higher will cause product degradation, gassing and potential container rupture which can result in a fire and/or explosion. Store out of direct sunlight in a well ventilated area away from combustible and incompatible material. DO NOT STORE WITH FOOD OR DRINK.

Refer to NFPA 400 Hazardous Materials Code from the National Fire Protection Association for additional storage information.

#### **Further information**

Store apart from other dangerous and incompatible substances. STORE BELOW 38 °C (100 °F). Keep away from direct sunlight. Keep containers tightly closed in a cool, well-ventilated place.

#### 8. Exposure controls/personal protection

#### 8.1. Control parameters

| • 2,4-Pentanedi               | ione (US-GHS Haz)                 |   |
|-------------------------------|-----------------------------------|---|
| CAS-No.<br>Control parameters | 123-54-6<br>25 ppm                | Time Weighted Average (TWA):(ACGIH)   |
| Control parameters            | Can be absorbed through the skin. | Skin designation:(ACGIH)  |
| Phlegmatizer                  |                                   |   |
| CAS-No.<br>Control parameters | 10 ppm<br>40 mg/m3                | Time Weighted Average (TWA):(WEEL)  |
| Control parameters            | Can be absorbed through the skin. | Skin designation:(WEEL)   |
| Hydrogen per                  | oxide (US-GHS Haz)                |   |
| CAS-No.<br>Control parameters | 7722-84-1<br>1 ppm                | Time Weighted Average (TWA):(ACGIH)   |
| Control parameters            | 1 ppm<br>1.4 mg/m3                | Permissible exposure limit:(OSHA Z1)  |
| Control parameters            | 1 ppm<br>1.4 mg/m3                | Time Weighted Average (TWA) Permissible<br>Exposure Limit (PEL):(US CA OEL) |

#### 8.2. Exposure controls

#### Engineering measures

Local exhaust and mechanical ventilation recommended.

### 8.3. Personal protective equipment

#### **Respiratory protection**

A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH's "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.

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#### Hand protection

Wear protective gloves made of the following materials:. Solvent-resistant gloves (butyl-rubber) Nitrile rubber Neoprene gloves Skin should be washed after contact.

#### Eye protection

Use chemical splash goggles or face shield.

#### Skin and body protection

A safety shower and eye wash fountain should be readily available.

To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

#### Hygiene measures

Do not eat, drink or smoke during use.

Wash hands before breaks and immediately after handling the product.

#### **Protective measures**

Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing

#### 9. Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

| physical state<br>Colour<br>Form<br>Odour | liquid<br>Water-white., to, light bro<br>liquid<br>moderate | own               |
|---|---|-------------------|
| Odour Threshold                           | No data available   |                   |
| рН  | not applicable  |                   |
| Melting point/range                       | no data available   |                   |
| Boiling point/range                       | not determined  |                   |
| Flash point                               | > 65 °C   | (Seta closed cup) |
| Evaporation rate                          | not determined  |                   |
| Flammability (solid, gas)                 | not applicable  |                   |
| Lower explosion limit                     | no data available   |                   |
| Upper explosion limit                     | no data available   |                   |
| Vapour pressure                           | no data available   |                   |
| Relative vapour density                   | > 1   |                   |
| Relative density                          | 1.1   |                   |
| Water solubility                          | soluble   |                   |

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|-----------------------------------|--|--|--|--|
| NORO                              | X® AZOX                                    |  |  |  |
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| S                                 | Solubility/qualitative                     | no data available  |  |  |
| F                                 | Partition coefficient: n-<br>octanol/water | no data available  |  |  |
| Autoignition temperature          |  | no data available  |  |  |
| Thermal decomposition             |  | > 60 °C<br>Method: SADT (UN test H.4)<br>Rapid, exothermic reaction ma<br>Decomposition Temperature (S<br>SADT-Self Accelerating Decom<br>at which the tested package siz<br>decomposition reaction. This r<br>which may autoignite. | y occur above the<br>SADT).<br>nposition Temper<br>ze will undergo a<br>eaction will gener | e Self Accelerated<br>ature. Lowest temperature<br>self-acclerating<br>rate flammable vapors |
| V                                 | iscosity, dynamic                          | no data available  |  |  |
| V                                 | /iscosity, kinematic                       | not determined   |  |  |

# 9.2. Other information peroxides

The substance or mixture is an organic peroxide classified as type D.

#### 10. Stability and reactivity

#### 10.1. Reactivity

Stable under recommended storage conditions.

#### 10.2. Chemical stability

Contact with incompatible substances can cause disintegration at or below SADT.

#### 10.3. Possibility of hazardous reactions

StabilityStable under recommended storage conditions.Possibility of hazardousVapors may form explosive mixtures with air.reactionsVapors may form explosive mixtures with air.

#### 10.4. Conditions to avoid

Keep away from heat and sources of ignition. Exposure to sunlight. Prolonged storage above 100°F (38°). Storage above SADT. Storage near flammable or combustible material.

#### 10.5. Incompatible materials

Keep away from strong acids, bases, heavy metals, salts, reducing agents and accelerators. Contaminants (e.g. rust, dust, ash). Combustible materials., Risk of decomposition. Dimethylaniline, cobalt napthenate and other promoters, accelerators, reducing agents, or any hot material.

#### 10.6. Hazardous decomposition products

Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke)., Irritant, caustic, flammable, noxious/toxic gases and vapors can develop in the case of fire and decomposition., Acrid smoke and irritating fumes.

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#### 11.1. Information on toxicological effects

carcinogenicity assessment

No toxicological studies are available on the mixture.

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. No component of this product present at levels greater than or equal to

0.1% is identified as a carcinogen or potential carcinogen by OSHA.

| Toxicological information on components |   |  |  |  |
|---|---|--|--|--|
| Acute oral toxicity                     | LD50 Oral Rat(male and female): > 2000 mg/kg  |  |  |  |
| Acute inhalation toxicity               | Rat(male): 13.1 mg/l / 1 h  |  |  |  |
| Acute dermal toxicity                   | LD50 Dermal Rat(male and female): >= 2000 mg/kg   |  |  |  |
| Eye irritation                          | / Causes serious eye irritation.<br>irritating<br>Irritating to eyes.   |  |  |  |
| Sensitization                           | SensitisingMay cause sensitisation by skin contact.   |  |  |  |
| Repeated dose toxicity                  | Rat(male and female)NOEL:100 mg/kgNOAEL:300 mg/kg   |  |  |  |
| Phlegmatizer<br>Acute oral toxicity     | LD50 Rat: 3914 mg/kg<br>RTECS   |  |  |  |
| Acute inhalation toxicity               | LC50 Rat: > 5.1 mg/l / 4 h  |  |  |  |
| Acute dermal toxicity                   | LD50 Rabbit: 8000 mg/kg<br>RTECS  |  |  |  |
| Skin irritation                         | irritating  |  |  |  |
| Eye irritation                          | Irritation to eyes, reversing after 7 to 21 days.   |  |  |  |
| Repeated dose toxicity                  | Rat(male and female) / 90-day<br>NOAEL: 3000 ppm  |  |  |  |
| Assessment of STOT single exposure      | Routes of exposure:inhalation (vapour)Target Organs:NoseAssessment:May cause respiratory irritation.May cause respiratory irritation. |  |  |  |
| Toxicity to reproduction                | Two-generation study Rat(male/female)<br>NOAEL (No Observed 350 mg/kg<br>Adverse Effect Level) of<br>parents:                         |  |  |  |

| SAFETY DATA SHEET         |  |  |  |                      |
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|                           |  | NOAEL F1:<br>May damage fertility o                                  | 150 mg/kg<br>or the unborn child.              |                      |
|                           | reproduction toxicity assessment           | May damage fertility of  | or the unborn child.                           |                      |
|                           | Teratogenicity                             | Rat<br>NOAEL (No Observed<br>Adverse Effect Level)<br>teratogenesis: | 1000 mg/kg                                     |                      |
|                           |  | NOAEL maternal (No<br>Observed Adverse Effect<br>Level):             | 1000 mg/kg                                     |                      |
|                           | CMR assessment<br>Toxicity to reproduction | May damage fertility of  | or the unborn child.                           |                      |
|                           | 2,4-Pentanedione<br>Acute oral toxicity    | LD50 Oral Rat(male):   | 760 mg/kg                                      |                      |
|                           |  | LD50 Oral Rat(female   |  |                      |
|                           | Acute inhalation toxicity                  | LC50 Rat: 5.1 mg/l /   | 4 h  |                      |
|                           | Acute dermal toxicity                      | LD50 Dermal Rat(female): 790 mg/kg                                   |  |                      |
|                           |  | LD50 Dermal Rat(ma   | le): 1370 mg/kg                                |                      |
|                           | Skin irritation                            | slight irritation  |  |                      |
|                           | Eye irritation                             | slight irritation  |  |                      |
|                           | Repeated dose toxicity                     | Dermal Rat(male and<br>NOAEL:<br>LOAEL:                              | female)<br>244 mg/kg<br>975 mg/kg              |                      |
|                           |  |  |  |                      |
| 12.                       | Ecological information                     |  |  |                      |
| 12.1.                     | Toxicity<br>Toxicity to fish               | There is no data avai  | able for this product.                         |                      |
|                           | Toxicity in aquatic invertebrates          | No data is available o   | on the product itself.                         |                      |
|                           | Toxicity to algae                          | No data is available c   | on the product itself.                         |                      |

12.2. Persistence and degradability Biodegradability no data available

# 12.3. Bioaccumulative potential Bioaccumulation n

no data available

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#### 12.4. Mobility in soil

Mobility

No data available

#### 12.5. Other adverse effects

Further Information

Avoid release to the environment.

#### 13. Disposal considerations

#### 13.1. Waste treatment methods

#### Product

Waste must be disposed of in accordance with federal, state and local regulations. Incineration is the preferred method of disposal. Contact United Initiators for additional information. Empty containers must be handled with care due to product residue. DO NOT HEAT OR CUT THE EMPTY CONTAINER WITH ELECTRIC OR GAS TORCH.

#### **Uncleaned packaging**

Packaging material should be recycled or disposed of in accordance with federal, state and local regulations.

#### 14. Transport information

#### D.O.T. Road/Rail

| 14.1.  | UN numbe              | er:   | UN 3105  |
|--------|-----------------------|---|--|
| 14.2.  | UN proper             | shipping name:                              | Organic peroxide type D, liquid(Acetyl Acetone Peroxide, <=42%)  |
| 14.3.  | Transport             | hazard class(es):                           | 5.2  |
| 14.4.  | Packing gr            | oup:  |  |
| 14.5.  | Environme pollutant): | ntal hazards (Marine                        |  |
| 14.6.  | Special pre           | ecautions for user:                         | No   |
| Air tr | ansport IC            | AO-TI/IATA-DGB                              |  |
| 14.1.  | UN numbe              | r:  | UN 3105  |
| 14.2.  | UN proper             | shipping name:                              | Organic peroxide type D, liquid(Acetyl Acetone Peroxide, <=42%)  |
| 14.3.  | Transport I           | hazard class(es):                           | 5.2  |
| 14.4.  | Packing gr            | oup:  |  |
| 14.5.  | Environme             | ntal hazards:                               |  |
| 14.6.  | Special pre           | ecautions for user:                         | Yes  |
|        | IATA-C:               | ERG-Code 5L                                 |  |
|        |                       | Must be protected from dir ventilated area. | ect sunlight and stored away from all sources of heat in a well- |
|        | IATA-P:               | ERG-Code 5L                                 |  |
|        |                       | Must be protected from dir ventilated area. | ect sunlight and stored away from all sources of heat in a well- |
| Sea t  | ransport IN           | IDG-Code/GGVSee (Germ                       | any)   |
| 14.1.  | UN numbe              | r:  | UN 3105  |
|        |                       |   |  |

 14.1. ON Number.
 ON \$105

 14.2. UN proper shipping name:
 ORGANIC PEROXIDE TYPE D, LIQUID(Acetyl Acetone Peroxide, <=42%)</td>

| SAF  | ETY DATA SHEET                              |  |   |                      |
|--|---|--|---|----------------------|
| NOR  | OX® AZOX                                    |  |   |                      |
| Mater<br>Speci <sup>*</sup><br>Order   | ial no.<br>fication <b>185444</b><br>Number | Version<br>Revision date<br>Print Date<br>Page | 2.0 / US<br>04/14/2015<br>04/14/2015<br>11 / 15 | driving your success |
| 14.3.  | Transport hazard class(es):                 | 5.2  |   |                      |
| 14.4. Packing group:   |   |  |   |                      |
| 14.5. Environmental hazards (Marine pollutant):  |   |  |   |                      |
| 14.6. Special precautions for user:<br>EmS:<br>"Separated from" acids and alkalis<br>Protected from sources of heat. |   | Yes<br>F-J,S-R<br>Ilis.                        |   |                      |
| 14 7   | Transport in bulk according to              | Annex II of MARPOL                             | 73/78 and the IBC Co                            | ode:                 |

#### 15. Regulatory information

#### **US Federal Regulations**

#### **OSHA**

If listed below, chemical specific standards apply to the product or components:

None listed

#### Clean Air Act Section (112)

If listed below, components present at or above the de minimus level are hazardous air pollutants:

None listed

#### **CERCLA Reportable Quantities**

If listed below, a reportable quantity (RQ) applies to the product based on the percent of the named component:

None listed

#### SARA Title III Section 311/312 Hazard Categories

for transportapproval see regulatory information

The product meets the criteria only for the listed hazard classes:

- Acute Health Hazard
- Chronic Health Hazard
- Fire Hazard

#### SARA Title III Section 313 Reportable Substances

If listed below, components are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

• Phlegmatizer

#### **Toxic Substances Control Act (TSCA)**

If listed below, non-proprietary substances are subject to export notification under Section 12 (b) of TSCA:



2,4-Pentanedione CAS-No. 123-54-6

One-Time Export Notification only.

| SAFETY DAT    |        |            |                          |                      |
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#### **State Regulations**

#### **California Proposition 65**

A warning under the California Drinking Water Act is required only if listed below:

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Phlegmatizer

#### **International Chemical Inventory Status**

Unless otherwise noted, this product is in compliance with the inventory listing of the countries shown below. For information on listing for countries not shown, contact the Product Regulatory Services Department.

| Europe (EINECS/ELINCS) | listed/registered     |
|------------------------|-----------------------|
| USA (TSCA)             | listed/registered     |
| Canada (DSL)           | listed/registered     |
| Australia (AICS)       | listed/registered     |
| Japan (MITI)           | listed/registered     |
| Philippines (PICCS)    | listed/registered     |
| China                  | listed/registered     |
| Korea                  | listed/registered     |
| New Zealand            | not listed/registered |

An employer using HMIS/NFPA labeling must through training ensure that its employees are fully aware of the hazards of the chemicals used.

#### **HMIS Ratings**

| Health :          | 2* |
|-------------------|----|
| Flammability :    | 1  |
| Physical Hazard : | 1  |

#### **NFPA Ratings**

#### 16. Other information

#### Further information

Revision date

04/14/2015

2 1 1

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

| SAFETY DATA                                   |        |  |   |                      |
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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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, unless specified in the text.

|               | (   |                                  |                                       |                      |  |  |
|---------------|---|----------------------------------|---------------------------------------|----------------------|--|--|
|               | L   | Version                          | 20/115                                |                      |  |  |
| Material no.  |   | Revision date                    | 2.0703                                | driving your success |  |  |
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| Logond        |   |                                  |                                       |                      |  |  |
| Legena        | Amoricon  | Chamiatry Council                |                                       |                      |  |  |
|               | American  | Conference of Governmental       | Industrial Hygonists                  |                      |  |  |
| ACG           |   | Committee on Sustainability      | industrial riygenists                 |                      |  |  |
| ADI           | Acceptable  | e Daily Intake                   |                                       |                      |  |  |
| ASTM          | American  | Society for Testing and Mater    | als                                   |                      |  |  |
| ATP           | Adaptation  | n to Technical Progress          |                                       |                      |  |  |
| BCF           | Bioconcer   | tration factor                   |                                       |                      |  |  |
| BOD           | Biochemic   | al oxygen demand                 |                                       |                      |  |  |
| c.c.          | closed cup  | )                                |                                       |                      |  |  |
| CAO           | Cargo Airo  | craft Only                       |                                       |                      |  |  |
| Carc          | Carcinoge   | n<br>Abatraat Sarviaaa           |                                       |                      |  |  |
| CAS           | Conada  | Abstract Services                |                                       |                      |  |  |
| CEPA          | Canadian  | Environmental Protection Act     |                                       |                      |  |  |
| CERCLA        | Comprehe  | ensive Environmental Respons     | e – Compensation and I                | iability Act         |  |  |
| CFR           | Code of F   | ederal Regulations               | e e e e e e e e e e e e e e e e e e e |                      |  |  |
| CMR           | carcinoger  | nic-mutagenic-toxic for reprod   | uction                                |                      |  |  |
| COD           | Chemical  | oxygen demand                    |                                       |                      |  |  |
| DIN           | German Ir   | nstitute for Standardization     |                                       |                      |  |  |
| DMEL          | Derived m   | inimum effect level              |                                       |                      |  |  |
| DNEL          | Derived no  | o effect level                   |                                       |                      |  |  |
| DOT           | Departme  | nt of Transportation             |                                       |                      |  |  |
|               | Final maxin   | nal effective concentration      |                                       |                      |  |  |
| ErC50         | Reduction   | of Growth Bate                   |                                       |                      |  |  |
| ERG           | Requestion of Growin Hale   |                                  |                                       |                      |  |  |
| FDA           | Food and Drug Administration  |                                  |                                       |                      |  |  |
| GHS           | Globally Harmonized System of Classification and Labelling of Chemicals (GHS) |                                  |                                       |                      |  |  |
| GLP           | Good Laboratory Practice  |                                  |                                       |                      |  |  |
| GMO           | Genetic M   | odified Organism                 |                                       |                      |  |  |
| HCS           | Hazard Co   | ommunication Standard            |                                       |                      |  |  |
| HMIS          | Hazardous   | s Materials Identification Syste | m                                     |                      |  |  |
|               | Internation   | al Agency for Research of G      | ancer                                 |                      |  |  |
| IBC           | Intermedia  | ate Bulk Container               |                                       |                      |  |  |
| ICAO-TI       | Internation   | al Civil Aviation Organization-  | Technical Instructions                |                      |  |  |
| ICCA          | Internation   | nal Council of Chemical Assoc    | ation                                 |                      |  |  |
| ID            | Identificati  | on number                        |                                       |                      |  |  |
| IMDG          | Internation   | nal Maritime Dangerous Good      | 3                                     |                      |  |  |
| IUPAC         | Internation   | al Union of Pure and Applied     | Chemistry                             |                      |  |  |
| ISO           | Internation   | nal Organization For Standard    | zation                                |                      |  |  |
|               | 50 % Leth   | al Concentration                 |                                       |                      |  |  |
| L(E)C50       | 1 C50 or E  | C50                              |                                       |                      |  |  |
| LOAEL         | Lowest ob   | served adverse effect level      |                                       |                      |  |  |
| LOEL          | Lowest ob   | served effect level              |                                       |                      |  |  |
| MARPOL        | Internation   | nal Convention for the Prevent   | ion of Pollution from Ship            | os                   |  |  |
| NFPA          | National F  | ire Protection Association       |                                       |                      |  |  |
| NOAEL         | No observ   | ed adverse effect level          |                                       |                      |  |  |
| NOEC          | no observ   | ed effect concentration          |                                       |                      |  |  |
| NOEL          | no observe  | ed effect level                  |                                       |                      |  |  |
| OFCD          | Organisati  | on for Economic Cooperation      | and Development                       |                      |  |  |
| OEL           | Occupatio   | nal Exposure Limit               |                                       |                      |  |  |
| OSHA          | Occupatio   | nal Safety and Health Adminis    | tration                               |                      |  |  |
| PBT           | Persistent  | , bioaccumulative, toxic         |                                       |                      |  |  |
| PEC           | Predicted   | effect concentration             |                                       |                      |  |  |
| PNEC          | Predicted   | no effect concentration          |                                       |                      |  |  |
| RQ            | Reportable  | e Quantity                       |                                       |                      |  |  |
| SDS           | Satety Dat  | ta Sheet                         |                                       |                      |  |  |
| 5101<br>11N   | Specific 1a   | arger Organ TOXICITy             |                                       |                      |  |  |
| vPvB          | Verv nerei  | stent, very bioaccumulative      |                                       |                      |  |  |
|               |   |                                  |                                       |                      |  |  |

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WHMIS WHO Workplace Hazardous Materials Information System World Health Organization