SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name Hexanal

Stock number: A16265, L09838
CAS Number: 66-25-1
EC number: 200-624-5

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

Identified use: SU24 Scientific research and development

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier: Thermo Fisher (Kandel) GmbH
Zeppelinstr. 7b
76185 Karlsruhe / Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0)721 84007 300
Email: tech@alfa.com
www.alfa.com

Informing department: Product safety Tel + +049 (0) 7275 988687-0

1.4 Emergency telephone number:

Carechem 24: +44 (o) 1235 239 670 (Multi-language emergency number)
Poison Information Center Mainz
www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

GHS02 flame
Flam. Liq. 3 H226 Flammable liquid and vapour.

GHS07
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2 H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

Xi: Irritant
R36/37/38: Irritating to eyes, respiratory system and skin.
R10: Flammable.

Information concerning particular hazards for human and environment: Not applicable

Other hazards that do not result in classification No information known.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 The substance is classified and labelled according to the CLP regulation.

Hazard pictograms

GHS02 GHS07

Signal word Warning

Hazard statements

H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P303+P361+P333 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.
vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

3.1 Substances

CAS# Designation:
66-25-1 Hexanal
Identification number(s):
EC number: 200-624-5

SECTION 4: First aid measures

4.1 Description of first aid measures

After inhalation
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
Seek immediate medical advice.

After skin contact
Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.

After eye contact
Rinse opened eye for several minutes under running water. Then consult doctor.

After swallowing Seek medical treatment.

4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

(Contd. on page 2)
### SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing agents: CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

5.2 Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released:
Carbon monoxide and carbon dioxide

5.3 Advice for firefighters
Protective equipment:
- Wear self-contained breathing apparatus.
- Wear full protective suit.
- Ensure adequate ventilation.

### SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
- Wear protective equipment. Keep unprotected persons away.
- Ensure adequate ventilation.
- Keep away from ignition sources.

6.2 Environmental precautions: Do not allow product to reach sewage system or water bodies.

6.3 Methods and material for containment and cleaning up:
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- Ensure adequate ventilation.
- Prevention of secondary hazards: Keep away from ignition sources.

6.4 Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

### SECTION 7: Handling and storage

7.1 Precautions for safe handling
- Handle under dry protective gas.
- Keep containers tightly sealed.
- Store in cool, dry place in tightly closed containers.
- Ensure good ventilation/exhaustion at the workplace.
- Information about protection against explosions and fires:
  - Protect against electrostatic charges.
  - Fumes can combine with air to form an explosive mixture.
  - Keep ignition sources away - Do not smoke.

7.2 Conditions for safe storage, including any incompatibilities
- Storage Requirements to be met by storerooms and containers: No special requirements.
- Information about storage in one common storage facility:
  - Store away from air.
  - Store away from oxidising agents.
- Further information about storage conditions:
  - Store under dry inert gas.
  - This product is air sensitive.
  - Keep container tightly sealed.
  - Store in cool, dry conditions in well sealed containers.

7.3 Specific end use(s)
- No further relevant information available.

### SECTION 8: Exposure controls/personal protection

Additional information about design of technical systems:
- Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

8.1 Control parameters
- Components with critical values that require monitoring at the workplace:
  - The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- Additional information: No data

8.2 Exposure controls
- Personal protective equipment
  - General protective and hygienic measures
    - The usual precautionary measures should be adhered to in handling the chemicals.
    - Keep away from foodstuffs, beverages and food.
    - Instantly remove any soiled and impregnated garments.
    - Wash hands during breaks and at the end of the work.
    - Do not inhale dust / smoke / mist.
    - Avoid contact with the eyes and skin.
    - Maintain an ergonomically appropriate working environment.
- Breathing equipment: Use breathing protection with high concentrations.
- Recommended filter device for short term use:
  - Use a respirator with organic vapor/acid gas cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards such as NIOSH (USA) or CEN (EU).
- Protection of hands:
  - Check protective gloves prior to each use for their proper condition.
  - The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- Material of gloves: Butyl rubber, BR
- Penetration time of glove material (in minutes) 120
- Glove thickness 0.3 mm
- Eye protection:
  - Safety glasses
- Face protection:
  - Face protection
- Body protection: Protective work clothing.

### SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
- General Information
  - Appearance:
    - Form: Liquid
    - Colour: Colourless
    - Smell: Not determined
    - Odour threshold: Not determined.
  - pH-value: Not determined.
### Change in condition
- Melting point/Melting range: -56 °C
- Boiling point/Boiling range: 130-131 °C
- Sublimation temperature / start: Not determined

### Flash point:
25 °C

### Inflammability (solid, gaseous):
Not determined.

### Ignition temperature:
220 °C

### Decomposition temperature:
Not determined

### Danger of explosion:
Product is not explosive. However, formation of explosive air/steam mixtures is possible.

### Critical values for explosion:
- Lower: Not determined
- Upper: Not determined

### Steam pressure at 20 °C:
12 hPa

### Density at 20 °C
0,834 g/cm³

### Partition coefficient (n-octanol/water):
Not determined.

### Viscosity:
- Dynamic at 20 °C: 0,69 mPas
- Kinematic: Not determined.

### 9.2 Other information
No further relevant information available.

### SECTION 10: Stability and reactivity
10.1 Reactivity
No information known.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts with strong oxidising agents

10.4 Conditions to avoid
No further relevant information available.

10.5 Incompatible materials:
- Air
- Oxidising agents

10.6 Hazardous decomposition products:
Carbon monoxide and carbon dioxide

### SECTION 11: Toxicological information
11.1 Information on toxicological effects

#### Acute toxicity:
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

LD/LC50 values that are relevant for classification: No data

#### Skin irritation or corrosion:
Causes skin irritation.

#### Eye irritation or corrosion:
Causes serious eye irritation.

#### Sensitization:
No sensitizing effect known.

#### Germ cell mutagenicity:
The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance.

#### Carcinogenicity:
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

#### Reproductive toxicity:
No effects known.

#### Specific target organ system toxicity - repeated exposure:
May cause respiratory irritation.

#### Specific target organ system toxicity - single exposure:

#### Aspiration hazard:
No effects known.

#### Subacute to chronic toxicity:
The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.

### Additional toxicological information:
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

### SECTION 12: Ecological information
12.1 Aquatic toxicity:
No further relevant information available.

12.2 Persistence and degradability:
No further relevant information available.

12.3 Bioaccumulative potential:
No further relevant information available.

12.4 Mobility in soil:
No further relevant information available.

### Additional ecological information:

#### General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water.
- Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.
- Avoid transfer into the environment.

#### 12.5 Results of PBT and vPvB assessment
- PBT: Not applicable.
- vPvB: Not applicable.

### 12.6 Other adverse effects
No further relevant information available.

### SECTION 13: Disposal considerations
13.1 Waste treatment methods

Recommendation
Hand over to disposers of hazardous waste.
Must be specially treated under adherence to official regulations.
Consult state, local or national regulations for proper disposal.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

### SECTION 14: Transport information
14.1 UN-Number
ADR, IMDG, IATA: UN1207

14.2 UN proper shipping name
ADR: 1207 HEXALDEHYDE
IMDG, IATA: HEXALDEHYDE

14.3 Transport hazard class(es)
ADR
- Class: 3 (F1) Flammable liquids.
Trade name Hexanal

Label
IMDG, IATA

Class
Label
3 Flammable liquids.

Packing group
ADR, IMDG, IATA
III

14.5 Environmental hazards:
Not applicable.

14.6 Special precautions for user
Warning: Flammable liquids.

Kemler Number:
30

EMS Number:
F-E,S-D

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC
Code
Not applicable.

Transport/Additional information:

ADR
Excepted quantities (EQ):
E1

Limited quantities (LQ):
5L

Transport category
3

Tunnel restriction code
D/E

UN "Model Regulation":
UN1207, HEXALDEHYDE, 3, III

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Australian Inventory of Chemical Substances: Substance is listed.

Standard for the Uniform Scheduling of Drugs and Poisons: Substance is not listed.

National regulations

Information about limitation of use:

Employment restrictions concerning young persons must be observed.

For use only by technically qualified individuals.

Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.

Other regulations, limitations and prohibitive regulations

ELINCS (European List of Notified Chemical Substances): Substance is not listed.

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006: Substance is not listed.

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.

Substance is not listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use): Substance is not listed.

15.2 Chemical safety assessment:
A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Global Marketing Department

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
vPvB: very Persistent and very Bioaccumulative
ACGIH: American Conference of Governmental Industrial Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)