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**MATERIAL SAFETY DATA SHEET**

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Issue Date

8-Dec-97

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**[1.CHEMICAL PRODUCT AND COMPANY IDENTIFICATION]**

PRODUCT NAME : ALDEHYDE C-9

COMPANY : Kao Corporation  
2-1-3,Bunka Sumidaku,TOKYO,131-8501 JAPAN

TELEPHONE NO. : 81-3-5630-7700(International Chemical Department)

EMERGENCY TELEPHONE NO. : 81-3-5630-7700(International Chemical Department)

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**[2.COMPOSITION / INFORMATION ON INGREDIENTS]**

SUBSTANCE / MIXTURE : Substance

CHEMICAL NAME : 1-NONANAL  
(GENERIC NAME)

CHEMICAL FORMULA : C<sub>9</sub>H<sub>18</sub>O

CAS RN : 124-19-6

UN No. : 3082

EINECS : 204-688-5

TSCA : Yes

OTHER INFORMATION : None

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**[3.HAZARDS IDENTIFICATION]**

FIRE AND EXPLOSION HAZARD : May be ignited by heat, sparks or flames.

POTENTIAL HEALTH EFFECTS : This material is not harmful in case usual handling.  
Irritating to skin.  
May cause eyes and respiratory system irritation.

ENVIRONMENTAL EFFECTS : May cause adverse effects in the aquatic environment.

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**[4.FIRST-AID MEASURES]**

IN CASE OF EYE CONTACT : Immediately hold eyelids open and flush with a stream of water for at least 15 minutes. If necessary seek medical attention.

IN CASE OF SKIN CONTACT : Wash material off the skin with plenty of water and soap. If necessary seek medical attention.

IN CASE OF INHALATION : Remove person to fresh air. If necessary seek medical attention.

IN CASE OF INGESTION : Seek medical attention. Never give anything by mouth to an unconscious person. If possible, rinse out mouth and give one or two glasses of water or milk to drink.

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**[5.FIRE-FIGHTING MEASURES]**

EXTINGUISHING MEASURES : Fight fire from upwind position.  
Move container from fire area if you can do it without risk.  
Keep unnecessary people away.  
Spray or scatter the extinguishing agents directly to the fire.

EXTINGUISHING AGENTS : In case of small fire use powder, carbon dioxide or dry sand.  
In case of large fire shut off air by spraying with water or foam.

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**[6.ACCIDENTAL RELEASE MEASURES]**

: Small spills : Absorb spills with sand or inert absorbent and flush with

Large spills : Remove person to safety.  
 Keep away from sources of ignition.  
 Ensure adequate ventilation.  
 Dike spills and dispose of in safe area.  
 Do not discharge into the drains, surface waters or ground

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### [7.HANDLING AND STORAGE]

**HANDLING** : Keep away from sources of ignition.  
 Do not smoke at work.  
 Handle in well-ventilated areas.  
 Use eye protection equipment as appropriate to situation.  
 If absorbed in paper or cloth, incinerate to avoid spontaneous combustion.

**STORAGE** : Keep container tightly closed.  
 Store in a dark, cool and well-ventilated place.

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### [8.EXPOSURE CONTROLS / PERSONAL PROTECTION]

**ACGIH(TLV)** : Not established

**OSHA(PEL)** : Not established

**VENTILATION** : Use local exhaust ventilation.

**PROTECTIVE MEASURES**

**RESPIRATORY PROTECTIVE EQUIPMENTS** : Use as appropriate to situation.

**EYE PROTECTIVE EQUIPMENTS** : Safety goggles

**HAND PROTECTIVE EQUIPMENTS** : Rubber gloves

**PROTECTIVE CLOTHINGS** : Use as appropriate to situation.

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### [9.PHYSICAL AND CHEMICAL PROPERTIES]

**APPEARANCE** : Clear liquid

**ODOUR** : Characteristic odour

**BOILING POINT** : 191.0 C , (375.8 F) (3)

**VAPOUR PRESSURE** : 0.035kPa ( 25.0 C ) , 0.0mmHg ( 77.0 F)

**VAPOUR DENSITY** : No data available

**VOLATILITY** : No

**MELTING / FREEZING POINT** : No data available

**SPECIFIC GRAVITY** : 0.826 ( 20.0 C ) , 0.826 ( 68.0 F)

**SOLUBILITY**

**WATER SOLUBILITY** : Insoluble

**SOLVENT SOLUBILITY** : Soluble in ethyl alcohol

**pH** : Not applicable

**VISCOSITY** : No data available

**OCTANOL / WATER PARTITION COEFFICIENT** : No data available

**OTHER INFORMATION** : None

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### [10.REACTIVITY AND STABILITY]

**FLASH POINT** : 90.0 C , (194.0 F) (Cleveland Open Cup Tester)

**AUTOIGNITION TEMPERATURE** : No data available

**EXPLOSIVE LIMIT IN AIR(LEC)** : No data available

**EXPLOSIVE LIMIT IN AIR(UEC)** : No data available

**COMBUSTIBILITY** : No information available

OXIDIZABILITY : No information available  
 SELF-REACTIVITY / EXPLOSIVITY : No information available  
 REACTIVITY AND STABILITY : Stable in general  
 HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS : carbon dioxide  
 OTHER INFORMATION : None

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**[11. TOXICOLOGICAL INFORMATION]**

CORROSIVITY : No data available  
 SKIN IRRITATION : Rabbit, 500mg/24hr. : Severe (1)  
 : Guinea pig, 100%, Open application test : Moderate  
 : Guinea pig, 100%, 24 hour closed patch test : Severe  
 EYE IRRITATION : No data available  
 SENSITIZATION : Human, Maximization test (1% in petrolatum) : Negative (2)  
 : Guinea pig, Cumulative Contact Enhancement Test (3% in ethyl alcohol) : Positive  
 ACUTE TOXICITY : Oral, rat, LD<sub>50</sub> : > 5000 mg/kg (1)  
 : Skin, rabbit, LD<sub>50</sub> : > 5000 mg/kg (1)  
 SUBCHRONIC EFFECTS : No data available  
 CHRONIC EFFECTS : No data available  
 CARCINOGENICITY : No data available  
 IARC : None of this product's components are listed  
 NTP : None of this product's components are listed  
 OSHA : None of this product's components are listed  
 MUTAGENICITY : No data available  
 REPRODUCTIVE EFFECTS : No data available  
 TERATOGENICITY : No data available  
 OTHER INFORMATION : None

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**[12. ECOLOGICAL INFORMATION]**

BIODEGRADABILITY : No data available  
 BIOACCUMULATION : No data available  
 FISH TOXICITY : No data available  
 OTHER INFORMATION : None

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**[13. DISPOSAL CONSIDERATIONS]**

Review "HANDLING AND STORAGE (Section 7)"  
 Dispose of waste in accordance with local, state and federal regulations.

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**[14. TRANSPORTATION INFORMATION]**

Follow all regulations in your country or region.  
 PRECAUTIONS : Review "ACCIDENTAL RELEASE MEASURES (Section 6)"  
 : Review "HANDLING AND STORAGE (Section 7)"  
 PROPER SHIPPING NAME : Environmentally Hazardous Substance, Liquid, NOS (1-Nonanal)  
 HAZARD CLASS : 9  
 UN NO. : 3082  
 PACKING GROUP : III  
 HAZARD LABELS : Miscellaneous

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**[15. REGULATORY INFORMATION]**

Follow all regulations in your country or region.  
 EINECS : 204-688-5

TSCA : Yes

KAO Corporation is not able to check up the regulatory information in regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

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**[16.OTHER INFORMATION]**

REFERENCES : (1)Registry of Toxic Effects of Chemical Substances NIOSH(Online data)  
(2)Opdyke, D.L.J.,Monographs on Fragrance Raw Materials, Food and Chemical toxicology.  
(3)Scientific Literature Reviews on Materials in flavor Usage,69 Volumes, 1974-1979

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