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

- **Product identifier**
- **Trade name:** Vinyl Acetate

- **Synonyms:**
  - Vinyl acetate monomer; VAM; Acetic Acid Vinyl Ester Monomer; Acetic acid, vinyl ester; 1-Acetoxyethylene; Ethenyl acetate; Ethenyl ethanoate; Vinyl a monomer; Vinyl ethanoate; Acetate de vinyle; Acetic acid, ethenyl ester; Acetic acid, ethylene ester

- **CAS Number:**
  - 108-05-4

- **Relevant identified uses of the substance or mixture and uses advised against:**
  - **Identified/Recommended uses:**
    - Manufacture of industrial substances
    - Chemical for synthesis
    - Raw Material for:
      - Monomer for the preparation of Copolymer
      - Resin
      - Adhesive
      - Coating material
    - Polyvinyl Alcohol, Polyvinyl Butyral, Vinyl Acetate Emulsion, Vnayl Acetate-Ethylene Co-Polymer (EVA Resin, VAE Emulsion), Vinyl Acetate and acrylic acid, Crotonic acid, Maleic acid, Alcoholysis of Ethylene-Vinyl Acetate Copolymer

- **Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier:** Dairen Chemical Corporation
    - 9th Fl., No. 301, SongJiang Rd.
    - Taipei City, 10483, TAIWAN
    - Tel: +886-2-7743-1500 Fax: +886-2-2509-9619
    - www.dcc.com.tw

  - **Further information obtainable from:** Respective plant’s environmental, health, and safety (EHS) Dept.

  - **Emergency telephone number:** +886-2-7743-1500 (08:30-17:30; GMT+8)

2 Hazards identification

- **Classification of the substance or mixture**
  - Flam. Liq. 2 H225 Highly flammable liquid and vapour.
  - Carc. 2 H351 Suspected of causing cancer.
  - Acute Tox. 4 H332 Harmful if inhaled.
  - STOT SE 3 H335 May cause respiratory irritation.
  - Acute Tox. 5 H303 May be harmful if swallowed.
  - Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

- **Label elements**
  - **GHS label elements**
    - The substance is classified and labelled according to the Globally Harmonised System (GHS).
  - **Hazard pictograms**
    - ![GHS02](image)
    - ![GHS07](image)
    - ![GHS08](image)

- **Signal word** Danger

- **Hazard-determining components of labelling:**
  - vinyl acetate

(Contd. on page 2)
Safety Data Sheet
according to Globally Harmonized System (GHS)

Trade name: Vinyl Acetate

Hazard statements
Highly flammable liquid and vapour.
May be harmful if swallowed.
Harmful if inhaled.
Suspected of causing cancer.
May cause respiratory irritation.
Harmful to aquatic life with long lasting effects.

Precautionary statements
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
Avoid breathing dust/fume/gas/mist/vapours/spray.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards
None Known.

3 Composition/information on ingredients

Chemical characterisation: Substances
CAS No. Description
108-05-4 vinyl acetate >99%
Identification number(s)
EC number: 203-545-4
Index number: 607-023-00-0

4 First aid measures

Description of first aid measures
General information:
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
After inhalation:
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
After skin contact:
Generally the product does not irritate the skin. Rinse cautiously with water for several minutes.
After eye contact: Rinse opened eye for several minutes under running water.
After swallowing:
Rinse out mouth and then drink plenty of water. Do not induce vomiting; call for medical help immediately. Give activated carbon, in order to reduce the resorption in the gastro-enteric tract.
Most important symptoms and effects, both acute and delayed
Disizziness
Breathing difficulty
Headache
Gastric or intestinal disorders
Coughing
Irritant effects
Drying-out effect resulting in rough and chapped skin.
39.4.1 · Indication of any immediate medical attention and special treatment needed
Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5 Firefighting measures

· Extinguishing media
· Suitable extinguishing agents:
  CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· For safety reasons unsuitable extinguishing agents: Water with full jet
· Special hazards arising from the substance or mixture
  Vapours are heavier than air and may spread along floors.
  Pay attention to flashback.
  Can form explosive gas-air mixtures.
  Container explosion may occur under fire conditions.
  Under certain fire conditions, traces of other toxic gases cannot be excluded.
· Advice for firefighters
  Protective equipment:
  Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing
  (includes fire fighting helmet, coat, trousers, boots, and gloves).
  Do not inhale explosion gases or combustion gases.
· Additional information
  Cool endangered receptacles with water spray.
  Collect contaminated fire fighting water separately. It must not enter the sewage system.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures
  Ensure adequate ventilation.
  Keep people at a distance and stay on the windward side.
  Do not breathe dust/fume/gas/mist/vapours/spray.
  Wear protective equipment. Keep unprotected persons away.
· Environmental precautions: Do not allow to enter sewers/surface or ground water.
· Methods and material for containment and cleaning up:
  Allow to solidify. Pick up mechanically.
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.
· 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 disposal information.

7 Handling and storage

· Precautions for safe handling
  Ensure good ventilation/exhaustion at the workplace.
  Wear protective gloves/protective clothing/eye protection/face protection.
  Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
  Avoid breathing vapor.
  Take measures to prevent the build up of electrostatic charge.
· Information about fire - and explosion protection:
  Danger of explosion if fluid enters the sewage system.
  Keep ignition sources away - Do not smoke.
39.4.1 Protect against electrostatic charges.

- Conditions for safe storage, including any incompatibilities
  - Storage:
  - Requirements to be met by storerooms and receptacles:
    Store in cool, dry place in tightly closed receptacles.
    Containers which are opened must be carefully resealed and kept upright to prevent leakage.
  - Information about storage in one common storage facility:
    Do not store together with reducing agents, heavy-metal compounds, acids and alkalis.
  - Further information about storage conditions:
    Store at 2 °C to 8 °C
    Keep container tightly sealed.
    Store in cool, dry conditions in well sealed receptacles.

8 Exposure controls/personal protection

- Additional information about design of technical facilities:
  Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines.
  Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

- Control parameters

  - Ingredients with limit values that require monitoring at the workplace:

    | Ingredient                  | Short-term | Long-term |
    |-----------------------------|------------|-----------|
    | 108-05-4 vinyl acetate      | 35.2 mg/m³, 10 ppm | 17.6 mg/m³, 5 ppm |
    |                             | 15 ppm     | 10 ppm    |

- Workers:
  - DNEL (inhalation, chronic effects systemic): 17.6 mg/m³
  - DNEL (inhalation, acute effects systemic): 35.2 mg/m³
  - DNEL (inhalation, chronic effects local): 17.6 mg/m³
  - DNEL (inhalation, acute effects local): 35.2 mg/m³
  - DNEL (oral, chronic effects systemic): 0.42 mg/kg bw/day

- PNECs
  - PNEC (fresh water): 0.016 mg/l with assessment factor of 10
  - PNEC (marine water): 0.0016 mg/l with assessment factor of 100
  - PNEC (intermittent release): 0.126 mg/l with assessment factor of 100
  - PNEC (sewage treatment plant; STP): 6 mg/l with assessment factor of 1
  - PNEC (freshwater sediments): 0.067 mg/kg sediment dw
  - PNEC (marine sediments): 0.0067 mg/kg sediment dw
  - PNEC (soil): 0.0035 mg/kg soil dw

- Exposure controls

- Personal protective equipment:

- General protective and hygienic measures:
  - Keep away from foodstuffs, beverages and feed.
  - Immediately remove all soiled and contaminated clothing
  - Wash hands before breaks and at the end of work.
  - Be sure to clean skin thoroughly after work and before breaks.
  - Ensure that washing facilities are available at the work place.

- Respiratory protection:
  - Short term filter device.
Filter A/P2
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Protection of hands:

Protective gloves

The selected protective gloves have to satisfy the specifications of standard EN 374 or its equivalent. Replace gloves immediately when torn or any change in appearance (dimension, colour, flexibility etc) is noticed.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves

Splash Contact:
Butyl rubber, BR
Recommended thickness of the material: ≥ 0.7 mm

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.

Penetration time of glove material

Splash Contact:
Break through time: > 240 min

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:

Safety glasses with side shields conforming to EN166, ANSI 87.1-2010, or equivalent.

Body protection:

Flame retardant antistatic protective clothing

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form: Liquid
Colour: Colourless
Odour: Sweetish

pH-value: Not determined.

Change in condition

Melting point/Melting range: -93.2 °C
Boiling point/Boiling range: 73 °C

Flash point: -8 °C (closed cup)

Flammability (solid, gaseous): Not applicable.

Ignition temperature: 425 °C
39.4.1

- Decomposition temperature: Not determined.
- Self-igniting: Not determined.
- Danger of explosion: Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

- Explosion limits:
  - Lower: 2.6 Vol %
  - Upper: 13.4 Vol %
- Vapour pressure at 20 °C: 111 hPa
- Density at 20 °C: 0.932 g/cm³
- Relative density at 20 °C: 0.932
- Vapour density: 3.0
- Evaporation rate: Not determined.
- Solubility in / Miscibility with water at 20 °C: 20 g/l
- Partition coefficient (n-octanol/water): 0.73 log POW

- Viscosity:
  - Dynamic: Not determined.
  - Kinematic: Not determined.

- Solvent content:
  - Organic solvents: 0.0 %
  - VOC (EC): 0.00 %

- Other information: No further relevant information available.

10 Stability and reactivity

- Reactivity
  When properly handled and stored, no dangerous reaction is known.
  Vapour may form explosive mixture with air.

- Chemical stability
  This product is stable under prescribed use and storage.
  Heat-sensitive
  Sensitive to light.
  Sensitive to moisture.
  Unstable upon depletion of inhibitor.
  Stabilizer: Hydroquinone

- Thermal decomposition / conditions to be avoided:
  No decomposition if used according to specifications.
  To avoid thermal decomposition do not overheat.

- Possibility of hazardous reactions
  Danger of polymerisation.
  Polymerization may occur under the influence of:
  light, UV Ray, heat, fire, static discharge, and depleted inhibitor
  Exothermic reaction with:
  Toluene
  Acids.
  strong alkalis
  Aldehyde
  Aluminium oxides
  water

(Contd. of page 7)
Risk of explosion with:
Hydrogen peroxide
Peroxi compounds
Oxygen
Polymerization initiators

**Conditions to avoid**
Avoid static discharge.
Warming
Heating
Exposure to light.
Temperatures above 30 °C.
Protect from heat. Keep ignition sources away.

**Incompatible materials:**
Acids.
Bases
Strong oxidizing agents
Peroxides
Amines.
Azo compound
Ethyleneimine (Aziridine)
Ethylene diamine
Ozone

**Hazardous decomposition products:**
Carbon monoxide (CO) and carbon dioxide (CO$_2$)
Acetaldehyde
Acetic Acid
De decomposition products depend upon temperature, air supply and the presence of other materials.

**11 Toxicological information**

**Information on toxicological effects**

**Acute toxicity:**
Harmful if inhaled.
May be harmful if swallowed.

**LD/LC50 values relevant for classification:**

<table>
<thead>
<tr>
<th>108-05-4 vinyl acetate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50</td>
</tr>
<tr>
<td>Dermal LD50</td>
</tr>
<tr>
<td>Inhalative LC50/4 h</td>
</tr>
</tbody>
</table>

**Skin corrosion/irritation:**
Not classified based on available data.
Rabbit: not irritating (OECD Test Guideline 404)

**Serious eye damage/eye irritation:**
Not classified based on available data.
Rabbit: not irritating (OECD Test Guideline 405)

**Respiratory or skin sensitization:**
Not classified based on available data.
Mice (Local Lymph Node Assay): Not sensitizing to the skin (OECD Test Guideline 403)

**Germ Cell Mutagenicity:**
Not classified based on available data.
In-vitro genotoxicity (non-mammalian cells): negative (OECD 471)
In-vivo genotoxicity (mouse): negative (Test Method: N/A)
· **Carcinogenicity:**
  Suspected of causing cancer.
  Mouse (oral, long-term exposure): positive (OECD Guideline 453)

· **Reproductive Toxicity:**
  Not classified based on available data.
  Rat: Negative (OECD 416)

· **Specific Target Organ Toxicity - Single Exposure (STOT SE):**
  May cause respiratory irritation.
  May cause drowsiness or dizziness.

· **Specific Target Organ Toxicity - Repeated Exposure (STOT RE):**
  Not classified based on available data.

· **Aspiration Hazard:** Not classified based on available data.

· **Primary irritant effect:**
  · on the skin: No irritating effect.
  · on the eye: No irritating effect.

· **Sensitisation:** No sensitising effects known.

· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
  Carc. 2

### 12 Ecological information

· **Toxicity**
  · Aquatic toxicity:
    Not classified based on available data.
    EC50 (Daphnia Magna, 24hr): 24 mg/L (OECD 202)
    ErC50 (alga, 72hr): 12,7 mg/L (OECD 201)
    NOEC (fish, 34d): 0,16 mg/L (OECD 210)

· **Persistence and degradability**
  Easily biodegradable
  Degradation: 82% (14d, OECD 301C)

· **Bioaccumulative potential**
  Bioaccumulation is unlikely.
  Bioconcentration Factor (BCF) : 3,16
  Partition coefficient, n-octanol/water (log Pow) : 0,73

· **Mobility in soil**
  Henry's Law Constant (H) : 56,1 Pa/m3.mol. 
  Partition coefficient, soil organic carbon/water (Koc) : ~60 ; log Koc: 1,7

· **Additional ecological information:**
  · General notes:
    Water hazard class 2 (German Regulation) (Assessment by list): hazardous for water
    Do not allow product to reach ground water, water course or sewage system.
    Danger to drinking water if even small quantities leak into the ground.

· **Results of PBT and vPvB assessment**
  Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

· **Other adverse effects** No further relevant information available.
13 Disposal considerations

- Waste treatment methods
  - Recommendation
  After prior treatment product has to be disposed of in an incinerator for hazardous waste adhering to the regulations pertaining to the disposal of particularly hazardous waste. Contact waste processors for recycling information.
  Must not be disposed together with household garbage. Do not allow product to reach sewage system. Any disposal method should also comply with national, regional, provincial, and local laws.

- Uncleaned packaging:
  - Recommendation:
  Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning. Disposal must be made according to official regulations.

14 Transport information

- UN-Number
  - ADR, IMDG, IATA
  UN1301

- UN proper shipping name
  - ADR
  1301 VINYL ACETATE, STABILIZED
  - IMDG, IATA
  VINYL ACETATE, STABILIZED

- Transport hazard class(es)
  - ADR, IMDG, IATA
  Class
  3 Flammable liquids.
  Label
  3
  Packing group
  ADR, IMDG, IATA
  II
  Environmental hazards:
  Marine pollutant:
  No
  Special precautions for user
  Warning: Flammable liquids.
  Danger code (Kemler):
  339
  EMS Number:
  F-E,S-D

Transport/Additional information:

- ADR
  Limited quantities (LQ)
  1L
  Transport category
  2
  Tunnel restriction code
  D/E
  UN "Model Regulation": UN1301, VINYL ACETATE, STABILIZED, 3, II

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  Status of global inventories:
  All component(s) within this product is listed or exempted from the following country’s chemical inventory:
  USA – TSCA
  Australia – AICS
  Canada – DSL
  China – IECSC

(Contd. of page 8)
Trade name: Vinyl Acetate

EU – EINECS/NLP
Japan – ENCS
Korea – KECI
New Zealand – NZIoC
Philippines – PICCS
Taiwan – ECSI

Chemical safety assessment: A Chemical Safety Assessment has been carried out.

16 Other information

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
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- VOC: Volatile Organic Compounds (USA, EU)
- PNEC: Predicted No-Effect Concentration (REACH)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- Flam. Liq. 2: Flammable liquids, Hazard Category 2
- Acute Tox. 5: Acute toxicity, Hazard Category 5
- Acute Tox. 4: Acute toxicity, Hazard Category 4
- Carc. 2: Carcinogenicity, Hazard Category 2
- STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
- Aquatic Chronic 3: Hazardous to the aquatic environment - Chronic Hazard, Category 3

Sources
Most toxicological and eco-toxicological data are obtained from European Chemical Agency (ECHA)'s public dissemination website.
http://apps.echa.europa.eu/registered/data/dossiers/DISS-9d9a90f3-faa1-6aae-e044-00144f67d249/DISS-9d9a90f3-faa1-6aae-e044-00144f67d249 DISS-9d9a90f3-faa1-6aae-e044-00144f67d249.html

General Disclaimers:
DCC Group recommends that all the users/customers/recipients to study this Safety Data Sheet (SDS) carefully and understand all the data or any potential hazards associated with this product. Please consult with appropriate expert if necessary. The information herein is provided in good faith and is believed to be accurate on the date of issue. No warranty, expressed or implied, is given. It is the customer’s/user’s responsibility to ensure that they are complying with local, regional, state, provincial, and/or national laws in using this product, as regulatory requirement may differ at each level. It is also the customer’s/user’s responsibility to determine the necessary condition required for using this product safely, as actual operating or usage conditions are beyond DCC Group's control. DCC Group will not be responsible for any SDS obtained from elsewhere other than from DCC Group. If you are unsure whether the SDS you have is current or have obtained the SDS from another source, please contact us to obtain the latest version.