Safety Data Sheet
according to Globally Harmonized System (GHS)

Printing date 27.09.2014 Revision: 27.09.2014

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 GHS07 GHS08

· **Signal word** Danger

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

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· **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**
Disziness
Breathing difficulty
Headache
Gastric or intestinal disorders
Coughing
Irritant effects
Drying-out effect resulting in rough and chapped skin.

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· **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:**
CO_2, 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.

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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:**	
108-05-4 vinyl acetate	
IOELV (EU)	Short-term value: 35,2 mg/m³, 10 ppm Long-term value: 17,6 mg/m³, 5 ppm
TLV (Korea)	Short-term value: 15 ppm Long-term value: 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:

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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

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· **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
Sensitivity 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
Auminium oxides
water

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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)
Ethylenediamine
Ozone

· **Hazardous decomposition products:**
Carbon monoxide (CO) and carbon dioxide (CO_2)
Acetaldehyde
Acetic Acid
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:**		
108-05-4 vinyl acetate		
Oral	LD50	2920 mg/kg (rat)
Dermal	LD50	2335 mg/kg (rabbit)
Inhalative	LC50/4 h	14,1 mg/l (rat)

· **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)

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· **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.

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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

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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.