



Safety Data Sheet

Version 01 Issuing Date: 2019-11-16

Review Date: 2021-04-14

1. Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifiers

Product name: VP/VCap Copolymer 50% Butyl Glycol Ether Solution

Trade Name: NKY® VP/VCap 55BG

VP/VCap Copolymer CAS-No.: 51987-20-3

Butyl Glycol Ether CAS-No.: 111-76-2

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

Identified uses: application in personal care and industry.

Uses advised against: no data available.

1.3 Details of the supplier of the safety data sheet

Company: Boai NKY Pharmaceuticals Ltd.

Address: No.1888 East Wenhua Road, Boai, Jiaozuo, Henan Province, China 454450.

Tel.: +86 391 8696320

Fax: +86 391 8692950

Email address: sales@boai-nky.com

1.3 Emergency telephone number

Emergency Phone #: +86 22 58316066

2. Hazards Identification

2.1 GHS Classification

FLAMMABLE LIQUIDS, Category 4

ACUTE TOXICITY - ORAL, Category 4

ACUTE TOXICITY - SKIN/DERMAL, Category 4

ACUTE TOXICITY - INHALATION, Category 4

SKIN CORROSION/IRRITATION, Category 2

SERIOUS EYE DAMAGE/IRRITATION, Category 2A

2.2 Label elements



Signal words: Warning

2.3 GHS Hazard Statements

Physical Hazards: H227 Combustible liquid.

Health Hazards: H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H315 Causes skin irritation



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H319 Causes serious eye irritation.

H332 Harmful if inhaled.

Environmental Hazards: Not classified as an environmental hazard under GHS criteria.

2.4 GHS Precautionary Statements

Prevention:

P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P261: Avoid breathing dust/fume/gas/mist/vapors/spray.

P264: Wash hands thoroughly after handling.

P270: Do not eat, drink or smoke when using this product.

P271: Use only outdoors or in a well-ventilated area.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response:

P370+P378: In case of fire: Use appropriate media for extinction.

P301+P312: IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell.

P330: Rinse mouth.

P302+P352: IF ON SKIN: Wash with plenty of soap and water.

P312: Call a POISON CENTER or doctor/physician if you feel unwell.

P322: Specific measures (see details on this label).

P363: Wash contaminated clothing before reuse.

P304+P340: IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

P321: Specific treatment (see details on label).

P332+P313: If skin irritation occurs: Get medical advice/attention.

P362: Take off contaminated clothing and wash before reuse.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313: If eye irritation persists: Get medical advice/attention.

Storage: P403+P233 - Store in a well-ventilated place. Keep container tightly closed.

Disposal: P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

3. Composition/Information on Ingredients

3.1 Mixtures

Chemical Nature: Vinylpyrrolidone/Vinylcaprolactam copolymer solution in butyl glycol ether.

3.4 Classification of components according to GHS

| Component | Classification | Hazard Statement | Concentration |
|---|-----------------|------------------|---------------|
| Vinylpyrrolidone/Vinylcaprolactam Copolymer | | | |
| CAS No. 51987-20-3 | Not classified. | N/A | 48.0%-55.0% |
| Butyl glycol ether | | | |



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| | | | |
|----------------------|-----------------------|-------------|-------------|
| CAS No. 111-76-2 | Flam. Liq.- 4 | H22, H302, | 45.0%-52.0% |
| EINECS No. 203-905-0 | Act. Oral – 4 | H315, H319, | |
| | Act. Skin – 4 | H332 | |
| | Act. Inh – 4 | | |
| | Skin/Eye Irrit. –2/2A | | |

4. First Aid Measures

4.1 General Information

Keep victim calm. Obtain medical treatment immediately.

If inhaled

Remove to fresh air. Do not attempt to rescue the victim unless proper respiratory protection is worn.

If the victim has difficulty breathing or tightness of the chest, is dizzy, vomiting, or unresponsive, give 100% oxygen with rescue breathing or CPR as required and transport to the nearest medical facility.

In case of skin contact

Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment.

In case of eye contact

Immediately flush eyes with large amounts of water for at least 15 minutes while holding eyelids open.

Transport to the nearest medical facility for additional treatment.

If swallowed

If swallowed, do not induce vomiting; transport to nearest medical facility for additional treatment.

4.2 Most important symptoms and effects, both acute and delayed

Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision. Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters. Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever.

4.3 Indication of any immediate medical attention and special treatment needed

Ingestion may cause coma, metabolic acidosis, and haemoglobinuria. Call a doctor or poison control center for guidance.

5. Fire Fighting Measures

Clear fire area of all non-emergency personnel.

5.1 Specific Hazards

Carbon monoxide may be evolved if incomplete combustion occurs. The vapour is heavier than air, spreads along the ground and distant ignition is possible.

5.2 Extinguishing Media



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Alcohol-resistant foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. Do not discharge extinguishing waters into the aquatic environment.

5.3 Unsuitable Extinguishing Media

Do not use water in a jet.

5.4 Protective Equipment for Fire fighters

Wear full protective clothing and self-contained breathing apparatus.

5.5 Other Advice

Keep adjacent containers cool by spraying with water.

6. Accidental Release Measures

Observe all relevant local and international regulations.

6.1 Personal precautions protective equipment and emergency procedures

Isolate hazard area and deny entry to unnecessary or unprotected personnel. Stay upwind and keep out of low areas.

6.2 Environmental precautions

Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment (of product and fire fighting water) to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment.

6.3 Methods and materials for containment and cleaning up

For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

6.4 Additional Advice

Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Vapour may form an explosive mixture with air.

7. Handling and Storage

7.1 General Precautions

Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. On guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.



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7.2 Precautions for safe Handling

Avoid inhaling vapour and/or mists. Avoid contact with skin, eyes, and clothing. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 10 m/sec). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations. Handling Temperature: Ambient.

7.3 Conditions for Safe Storage

Keep container tightly closed. Must be stored in a diked(bunded) well-ventilated area, away from sunlight, ignition sources and other sources of heat. Must be kept inhibited during storage and shipment as material can polymerise. Vapours from tanks should not be released to atmosphere. Breathing losses during storage should be controlled by a suitable vapour treatment system.

Storage Temperature: Ambient.

7.4 Product Transfer

Keep containers closed when not in use. Do not use compressed air for filling, discharging or handling.

7.5 Recommended Materials

For containers, or container linings use mild steel, stainless steel.

7.6 Container Advice

Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers.

7.7 Unsuitable Materials

Aluminium. Most plastics. Natural, butyl, neoprene or nitrile rubbers.

7.8 Other Advice

Glycol ethers can be peroxide formers. Ensure that all local regulations regarding handling and storage facilities are followed.

8. Exposure Controls/Personal Protection

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

8.1 Occupational Exposure Limits

| Material | Source | Type | ppm | mg/m ³ | Notation |
|--------------------|--------|------|-----|-------------------|----------|
| Butyl glycol ether | ACGIH | TWA | 20 | | |

| Material | Source | Hazard Designation |
|--------------------|--------|---|
| Butyl glycol ether | ACGIH | Confirmed animal carcinogen with unknown relevance to humans. |
| | IARC | Class 3 - Not classifiable as to its carcinogenicity to humans. |



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8.2 Biological Exposure Index (BEI) - See reference for full details

| Material | Determinant | Sampling time | BEI | Reference |
|--------------------|---|---------------|----------|------------------|
| Butyl glycol ether | Butoxyacetic acid (BAA), with hydrolysis in Creatinine in urine | End of shift | 200 mg/g | ACGIH BEL (2008) |

8.3 Appropriate Engineering Controls

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits. Eye washes and showers for emergency use.

8.4 Individual Protection Measures

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

8.5 Respiratory protection

If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for organic gases and vapours [boiling point >65 °C (149 °F)] meeting EN14387. Where air filtering respirators are unsuitable (e.g., airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.

8.6 Eye/face protection

Chemical splash goggles (chemical monogoggles). Monogoggles (EN166)

8.7 Body protection

Use protective clothing which is chemical resistant to this material. Safety shoes and boots should also be chemical resistant.

8.8 Hand protection

Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739, AS/NZS:2161) made from the following materials may provide suitable chemical protection: Longer term protection: Natural rubber. Butyl rubber. Incidental contact/Splash protection: Neoprene rubber. Viton. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is



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recommended.

8.9 Monitoring Methods

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Examples of sources of recommended air monitoring methods are given below or contact supplier. Further national methods may be available. National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods,

<http://www.cdc.gov/niosh/nmam/nmammenu.html>.

Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods,

<http://www.oshaslc.gov/dts/sltc/methods/toc.html>.

Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances,

<http://www.hsl.gov.uk/publications/mdhs.aspx>.

8.10 Environmental Exposure Controls

Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

| | |
|---|---|
| a) Appearance | Yellow clear liquid. |
| b) Odour | Characteristic |
| c) Odour threshold | No data available |
| d) pH | No data available |
| e) Boiling point | 168-173 °C |
| f) Melting / freezing point | Typical -77 °C |
| g) Flash point | Typical 67 °C (Closed cup) |
| h) Explosion / Flammability limits in air | 1.1- 10.6 % (V) |
| i) Auto-ignition temperature | No data available |
| j) Vapour pressure | No data available |
| k) Density | No data available |
| l) Water solubility | Soluble |
| m) Decomposition temperature | Note: Stable under normal conditions of use. |
| n) Evaporation rate : | No data available |
| o) Vapour density (air=1) | No data available |
| p) Volatile organic carbon | No data available |
| q) Viscosity | 1.05-1.20 (1% solids in water @25 °C, CF #75) |
| r) Explosive properties | No data available |
| s) Oxidizing properties | No data available |



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9.2 Other safety information

No data available.

10. Stability and Reactivity

10.1 Chemical stability

Stable under normal conditions of use.

10.2 Conditions to avoid

Avoid any source of ignition. Avoid contact with heat, sparks, open flame, and static discharge.

10.3 Incompatible materials

Strong oxidising agents. Acids. Strong bases. Salts of strong bases. Aluminium.

10.4 Decomposition Products

Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation. May form explosive peroxides.

10.5 Possibility of hazardous Reactions

No data available

10.6 Sensitivity to Static Discharge

Yes, in certain circumstances product can ignite due to static electricity.

11. Toxicological Information

11.1 Information on toxicological effects

Basis for Assessment

Information given is based on product testing, and/or similar products, and/or components.

Likely routes of exposure

Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.

Acute toxicity

Acute Oral Toxicity: Harmful if swallowed. LD50 >300 - <=2000 mg/kg, Rat

Acute Dermal Toxicity: Harmful in contact with skin. LD50 >50 - <=200 mg/kg, Rabbit

Acute Inhalation Toxicity: Harmful if inhaled. LC50 > 10,0 - <= 20,0 mg/l, 4 hours, Rat

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitization

Not expected to be a sensitiser.

Aspiration hazard

Not considered an aspiration hazard.

Germ cell mutagenicity



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Not mutagenic.

Reproductive and Developmental Toxicity

Not expected to impair fertility. Not expected to be a developmental toxicant. Affects reproductive system in animals at doses which produce other toxic effects. Causes foetotoxicity in animals at doses which are maternally toxic.

Carcinogenicity

Not expected to be carcinogenic. US NTP inhalation studies found no evidence of cancer in rats. In mice, a small increase in tumours of the liver and the forestomach occurred, which are of uncertain relevance to man.

Specific target organ toxicity – single exposure

Inhalation of vapours or mists may cause irritation to the respiratory system.

Specific target organ toxicity – repeated exposure

Not expected to be a hazard.

Blood: causes haemolysis of red blood cells and/or anaemia in animals, but not considered relevant for man.

12. Ecological Information

Basis for Assessment: Information given is based on product testing.

12.1 Acute Toxicity

Fish: Practically non toxic: LL/EL/IL50 > 100 mg/l

Aquatic Invertebrates: Practically non toxic: LL/EL/IL50 > 100 mg/l

Algae: Practically non toxic: LL/EL/IL50 > 100 mg/l

Microorganisms: Practically non toxic: LL/EL/IL50 > 100 mg/l

12.2 Mobility

If product enters soil, one or more constituents will be mobile and may contaminate groundwater. Dissolves in water.

12.3 Persistence and degradability

Readily biodegradable. Oxidises rapidly by photo-chemical reactions in air.

12.4 Bioaccumulation potential

Not expected to bioaccumulate significantly.

13. Disposal Considerations

13.1 Material Disposal

Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses. Waste product should not be allowed to contaminate soil or water.

13.2 Container Disposal

Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not, puncture, cut, or weld uncleaned drums. Send to drum



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recoverer or metal reclaimer.

13.3 Local Legislation

Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. Transport Information

14.1 Land (as per ADR classification): Not regulated

This material is not classified as dangerous under ADR regulations.

14.2 IMDG

This material is not classified as dangerous under IMDG regulations.

14.3 IATA (Country variations may apply)

This material is either not classified as dangerous under IATA regulations or needs to follow country specific requirements.

14.4 Sea (Annex II of MARPOL 73/78 and the IBC code)

Pollution Category: Y

Ship Type: 3

Product Solvent Name: Butyl Glycol Ether

Special Precaution: Refer to Chapter 7, Handling & Storage, for special which a user needs to be aware of or needs to comply with in connection with transport.

14.5 Additional Information

This product may be transported under nitrogen blanketing. Nitrogen is an odourless and invisible gas. Exposure to nitrogen may cause asphyxiation or death. Personnel must observe strict safety precautions when involved with a confined space entry.

15. Regulatory Information

This safety data sheet is compiled according to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) – Sixth revised edition.

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

15.1 Chemical Inventory Status

| Chemical Name | Synonyms | CAS Number | EC Number |
|--|--|------------|------------|
| 1-ethenylazepan-2-one, 1-ethenylpyrrolidin-2-one | Vinylpyrrolidone/Vinylcaprolactam Copolymer | 51987-20-3 | N/A |
| European Inventory of Existing Commercial Chemical Substances (EINECS) | | | Not Listed |
| EC Inventory | | | Not Listed |
| United States Toxic Substances Control Act (TSCA) Inventory | | | Not Listed |
| New Zealand Inventory of Chemicals (NZIoC) | | | Not Listed |
| Philippines Inventory of Chemicals and Chemical Substances (PICCS) | | | Not Listed |



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| Vietnam National Chemical Inventory | | | Not Listed |
|--|----------|------------|------------|
| Chinese Chemical Inventory of Existing Chemical Substances (China IECSC) | | | Not Listed |
| Chemical Name | Synonyms | CAS Number | EC Number |
| Butyl glycol ether | N/A | 111-76-2 | 203-905-0 |
| European Inventory of Existing Commercial Chemical Substances (EINECS) | | | Listed |
| United States Toxic Substances Control Act (TSCA) Inventory | | | Listed |
| New Zealand Inventory of Chemicals (NZIoC) | | | Listed |
| Philippines Inventory of Chemicals and Chemical Substances (PICCS) | | | Listed |
| Vietnam National Chemical Inventory | | | Listed |
| Chinese Chemical Inventory of Existing Chemical Substances (China IECSC) | | | Listed |

15.2 Safety, health and environmental regulations/legislation specific for the substance of mixture

No data available.

15.3 Chemical safety assessment

No data available.

16 Other Information

Further information

The above information is believed to be correct, but does not intend to be all-inclusive and shall be used only as a guide. This material safety data sheet is based on our current knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any assurances on product properties and does not constitute a contractual legal relationship.

Boai NKY Pharmaceuticals Ltd. and its Affiliates shall not be held liable for any damage resulting from the handling or from the contact with the above product.

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