



FW-7 N&A 7 Flavor

Flavor West Manufacturing, LLC.

Version No: 2.2.10.9

Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Chemwatch Hazard Alert Code: 4

Issue Date: 08/19/2021

Print Date: 08/19/2021

L.GHS.USA.EN

SECTION 1 Identification

Product Identifier

| | |
|-------------------------------|-------------------|
| Product name | FW-7 N&A 7 Flavor |
| Synonyms | Not Available |
| Other means of identification | Not Available |

Recommended use of the chemical and restrictions on use

| | |
|--------------------------|---|
| Relevant identified uses | Use according to manufacturer's directions. |
|--------------------------|---|

Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

| | |
|-------------------------|--|
| Registered company name | Flavor West Manufacturing, LLC. |
| Address | 29400 Hunco Way, Lake Elsinore CA 92530 United States |
| Telephone | (951) 893-5120 |
| Fax | (714) 276-1621 |
| Website | www.FlavorWest.com |
| Email | Flavor@FlavorWest.com |

Emergency phone number

| Association / Organisation | Chemwatch | CHEMWATCH EMERGENCY RESPONSE |
|-----------------------------------|-----------|------------------------------|
| Emergency telephone numbers | see below | +61 2 9186 1132 |
| Other emergency telephone numbers | see below | +1 855-237-5573 |

Once connected and if the message is not in your preferred language then please dial 01

Una vez conectado y si el mensaje no está en su idioma preferido, por favor marque 02

SECTION 2 Hazard(s) identification

Classification of the substance or mixture

NFPA 704 diamond




Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health Red = Fire Yellow = Reactivity White = Special (Oxidizer or water reactive substances)

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| | |
|-----------------------|---|
| Classification | Flammable Liquids Category 4, Serious Eye Damage/Eye Irritation Category 1, Skin Corrosion/Irritation Category 2, Sensitisation (Skin) Category 1 |
|-----------------------|---|

Label elements

| | |
|----------------------------|---|
| Hazard pictogram(s) |  |
|----------------------------|---|

| | |
|--------------------|---------------|
| Signal word | Danger |
|--------------------|---------------|

Hazard statement(s)

| | |
|-------------|--------------------------------------|
| H227 | Combustible liquid. |
| H318 | Causes serious eye damage. |
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |

Hazard(s) not otherwise classified

Not Applicable

Precautionary statement(s) General

| | |
|-------------|---|
| P101 | If medical advice is needed, have product container or label at hand. |
| P102 | Keep out of reach of children. |
| P103 | Read label before use. |

Precautionary statement(s) Prevention

| | |
|-------------|--|
| P210 | Keep away from heat/sparks/open flames/hot surfaces. - No smoking. |
| P280 | Wear protective gloves, protective clothing, eye protection and face protection. |
| P261 | Avoid breathing mist/vapours/spray. |
| P264 | Wash all exposed external body areas thoroughly after handling. |
| P272 | Contaminated work clothing should not be allowed out of the workplace. |

Precautionary statement(s) Response

| | |
|-----------------------|--|
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P310 | Immediately call a POISON CENTER or doctor/physician. |
| P362 | Take off contaminated clothing and wash before reuse. |
| P370+P378 | In case of fire: Use alcohol resistant foam or normal protein foam for extinction. |
| P302+P352 | IF ON SKIN: Wash with plenty of water. |
| P333+P313 | If skin irritation or rash occurs: Get medical advice/attention. |

Precautionary statement(s) Storage

| | |
|------------------|--|
| P403+P235 | Store in a well-ventilated place. Keep cool. |
|------------------|--|

Precautionary statement(s) Disposal

| | |
|-------------|--|
| P501 | Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation. |
|-------------|--|

SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

| CAS No | %[weight] | Name |
|---------|-----------|-------------------------|
| 57-55-6 | 80-90 | <u>propylene glycol</u> |

Continued...

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The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4 First-aid measures

Description of first aid measures

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|---------------------|--|
| Eye Contact | <p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Immediately hold eyelids apart and flush the eye continuously with running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▶ Transport to hospital or doctor without delay. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| Skin Contact | <p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately remove all contaminated clothing, including footwear. ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation. |
| Inhalation | <ul style="list-style-type: none"> ▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▶ Other measures are usually unnecessary. |
| Ingestion | <ul style="list-style-type: none"> ▶ Immediately give a glass of water. ▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. |

Most important symptoms and effects, both acute and delayed

See Section 11

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

- ▶ Polyethylene glycols are generally poorly absorbed orally and are mostly unchanged by the kidney.
- ▶ Dermal absorption can occur across damaged skin (e.g. through burns) leading to increased osmolality, anion gap metabolic acidosis, elevated calcium, low ionised calcium, CNS depression and renal failure.
- ▶ Treatment consists of supportive care.

[Ellenhorn and Barceloux: Medical Toxicology]

Propylene glycol is primarily a CNS depressant in large doses and may cause hypoglycaemia, lactic acidosis and seizures.

- ▶ The usual measures are supportive care and decontamination (Ipecac/ lavage/ activated charcoal/ cathartics), within 2 hours of exposure should suffice.
- ▶ Check the anion gap, arterial pH, renal function and glucose levels.

Ellenhorn and Barceloux: Medical Toxicology

SECTION 5 Fire-fighting measures

Extinguishing media

- ▶ Alcohol stable foam.
- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.

Special hazards arising from the substrate or mixture

| | |
|-----------------------------|--|
| Fire Incompatibility | <ul style="list-style-type: none"> ▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |
|-----------------------------|--|

Special protective equipment and precautions for fire-fighters

| | |
|------------------------------|---|
| Fire Fighting | <ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear full body protective clothing with breathing apparatus. ▶ Prevent, by any means available, spillage from entering drains or water course. ▶ Use water delivered as a fine spray to control fire and cool adjacent area. |
| Fire/Explosion Hazard | <ul style="list-style-type: none"> ▶ Combustible. ▶ Slight fire hazard when exposed to heat or flame. ▶ Heating may cause expansion or decomposition leading to violent rupture of containers. ▶ On combustion, may emit toxic fumes of carbon monoxide (CO). |

Continued...

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Combustion products include:
carbon dioxide (CO₂)
other pyrolysis products typical of burning organic material.
May emit corrosive fumes.

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

| Minor Spills | <ul style="list-style-type: none"> ▶ Remove all ignition sources. ▶ Clean up all spills immediately. ▶ Avoid breathing vapours and contact with skin and eyes. ▶ Control personal contact with the substance, by using protective equipment. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|---|--------------|------------|-----------------|------------|-------------|--------------------|--|--|--|--|------------------------------------|---|--------|--------|----------|-------------------------------|---|-------|-----------|------------|----------------------------|---|--------|--------|---------|---------------------|---|-------|-----------|---------------|-----------------------------|---|-------|-----------|---------|-----------------------|---|-------|----------|---------------|---------------------|--|--|--|--|------------------------------------|---|--------|------------|---------|-----------------------------|---|--------|------------|------------|----------------------------|---|--------|------------|-----------------|---------------------|---|-------|------------|---------|--------------------------------|---|--------|------------|-----------------|--------------------|---|-------|------------|---------|
| Major Spills | <p>Chemical Class: alcohols and glycols For release onto land: recommended sorbents listed in order of priority.</p> <table border="1"> <thead> <tr> <th>SORBENT TYPE</th> <th>RANK</th> <th>APPLICATION</th> <th>COLLECTION</th> <th>LIMITATIONS</th> </tr> </thead> <tbody> <tr> <td colspan="5">LAND SPILL - SMALL</td> </tr> <tr> <td>cross-linked polymer - particulate</td> <td>1</td> <td>shovel</td> <td>shovel</td> <td>R, W, SS</td> </tr> <tr> <td>cross-linked polymer - pillow</td> <td>1</td> <td>throw</td> <td>pitchfork</td> <td>R, DGC, RT</td> </tr> <tr> <td>sorbent clay - particulate</td> <td>2</td> <td>shovel</td> <td>shovel</td> <td>R, I, P</td> </tr> <tr> <td>wood fiber - pillow</td> <td>3</td> <td>throw</td> <td>pitchfork</td> <td>R, P, DGC, RT</td> </tr> <tr> <td>treated wood fiber - pillow</td> <td>3</td> <td>throw</td> <td>pitchfork</td> <td>DGC, RT</td> </tr> <tr> <td>foamed glass - pillow</td> <td>4</td> <td>throw</td> <td>pichfork</td> <td>R, P, DGC, RT</td> </tr> <tr> <td colspan="5">LAND SPILL - MEDIUM</td> </tr> <tr> <td>cross-linked polymer - particulate</td> <td>1</td> <td>blower</td> <td>skiploader</td> <td>R,W, SS</td> </tr> <tr> <td>polypropylene - particulate</td> <td>2</td> <td>blower</td> <td>skiploader</td> <td>W, SS, DGC</td> </tr> <tr> <td>sorbent clay - particulate</td> <td>2</td> <td>blower</td> <td>skiploader</td> <td>R, I, W, P, DGC</td> </tr> <tr> <td>polypropylene - mat</td> <td>3</td> <td>throw</td> <td>skiploader</td> <td>DGC, RT</td> </tr> <tr> <td>expanded mineral - particulate</td> <td>3</td> <td>blower</td> <td>skiploader</td> <td>R, I, W, P, DGC</td> </tr> <tr> <td>polyurethane - mat</td> <td>4</td> <td>throw</td> <td>skiploader</td> <td>DGC, RT</td> </tr> </tbody> </table> <p>Legend DGC: Not effective where ground cover is dense R: Not reusable I: Not incinerable P: Effectiveness reduced when rainy RT:Not effective where terrain is rugged SS: Not for use within environmentally sensitive sites W: Effectiveness reduced when windy Reference: Sorbents for Liquid Hazardous Substance Cleanup and Control; R.W Melvold et al: Pollution Technology Review No. 150: Noyes Data Corporation 1988 Moderate hazard.</p> <ul style="list-style-type: none"> ▶ Clear area of personnel and move upwind. ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves. | SORBENT TYPE | RANK | APPLICATION | COLLECTION | LIMITATIONS | LAND SPILL - SMALL | | | | | cross-linked polymer - particulate | 1 | shovel | shovel | R, W, SS | cross-linked polymer - pillow | 1 | throw | pitchfork | R, DGC, RT | sorbent clay - particulate | 2 | shovel | shovel | R, I, P | wood fiber - pillow | 3 | throw | pitchfork | R, P, DGC, RT | treated wood fiber - pillow | 3 | throw | pitchfork | DGC, RT | foamed glass - pillow | 4 | throw | pichfork | R, P, DGC, RT | LAND SPILL - MEDIUM | | | | | cross-linked polymer - particulate | 1 | blower | skiploader | R,W, SS | polypropylene - particulate | 2 | blower | skiploader | W, SS, DGC | sorbent clay - particulate | 2 | blower | skiploader | R, I, W, P, DGC | polypropylene - mat | 3 | throw | skiploader | DGC, RT | expanded mineral - particulate | 3 | blower | skiploader | R, I, W, P, DGC | polyurethane - mat | 4 | throw | skiploader | DGC, RT |
| SORBENT TYPE | RANK | APPLICATION | COLLECTION | LIMITATIONS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LAND SPILL - SMALL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cross-linked polymer - particulate | 1 | shovel | shovel | R, W, SS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cross-linked polymer - pillow | 1 | throw | pitchfork | R, DGC, RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| sorbent clay - particulate | 2 | shovel | shovel | R, I, P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| wood fiber - pillow | 3 | throw | pitchfork | R, P, DGC, RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| treated wood fiber - pillow | 3 | throw | pitchfork | DGC, RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| foamed glass - pillow | 4 | throw | pichfork | R, P, DGC, RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LAND SPILL - MEDIUM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cross-linked polymer - particulate | 1 | blower | skiploader | R,W, SS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| polypropylene - particulate | 2 | blower | skiploader | W, SS, DGC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| sorbent clay - particulate | 2 | blower | skiploader | R, I, W, P, DGC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| polypropylene - mat | 3 | throw | skiploader | DGC, RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| expanded mineral - particulate | 3 | blower | skiploader | R, I, W, P, DGC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| polyurethane - mat | 4 | throw | skiploader | DGC, RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 Handling and storage

Precautions for safe handling

Continued...

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| Safe handling | <ul style="list-style-type: none"> ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs. ▶ Use in a well-ventilated area. ▶ Prevent concentration in hollows and sumps. ▶ DO NOT allow clothing wet with material to stay in contact with skin |
| Other information | <p>Consider storage under inert gas.</p> <ul style="list-style-type: none"> ▶ Material is hygroscopic, i.e. absorbs moisture from the air. Keep containers well sealed in storage. ▶ Store in original containers. ▶ Keep containers securely sealed. ▶ No smoking, naked lights or ignition sources. ▶ Store in a cool, dry, well-ventilated area. |

Conditions for safe storage, including any incompatibilities

| | |
|--------------------------------|--|
| Suitable container | <ul style="list-style-type: none"> ▶ Metal can or drum ▶ Packaging as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks. |
| Storage incompatibility | <ul style="list-style-type: none"> ▶ Glycols and their ethers undergo violent decomposition in contact with 70% perchloric acid. This seems likely to involve formation of the glycol perchlorate esters (after scission of ethers) which are explosive, those of ethylene glycol and 3-chloro-1,2-propanediol being more powerful than glyceryl nitrate, and the former so sensitive that it explodes on addition of water. <p>Alcohols</p> <ul style="list-style-type: none"> ▶ are incompatible with strong acids, acid chlorides, acid anhydrides, oxidising and reducing agents. ▶ reacts, possibly violently, with alkaline metals and alkaline earth metals to produce hydrogen ▶ react with strong acids, strong caustics, aliphatic amines, isocyanates, acetaldehyde, benzoyl peroxide, chromic acid, chromium oxide, dialkylzincs, dichlorine oxide, ethylene oxide, hypochlorous acid, isopropyl chlorocarbonate, lithium tetrahydroaluminate, nitrogen dioxide, pentafluoroguanidine, phosphorus halides, phosphorus pentasulfide, tangerine oil, triethylaluminium, triisobutylaluminium ▶ should not be heated above 49 deg. C. when in contact with aluminium equipment |

SECTION 8 Exposure controls / personal protection**Control parameters****Occupational Exposure Limits (OEL)****INGREDIENT DATA**

Not Available

Emergency Limits

| Ingredient | TEEL-1 | TEEL-2 | TEEL-3 |
|------------------|----------|-------------|-------------|
| propylene glycol | 30 mg/m3 | 330 mg/m3 | 2,000 mg/m3 |
| propylene glycol | 30 mg/m3 | 1,300 mg/m3 | 7,900 mg/m3 |

| Ingredient | Original IDLH | Revised IDLH |
|------------------|---------------|---------------|
| propylene glycol | Not Available | Not Available |

Occupational Exposure Banding

| Ingredient | Occupational Exposure Band Rating | Occupational Exposure Band Limit |
|------------------|-----------------------------------|----------------------------------|
| propylene glycol | E | ≤ 0.1 ppm |

Notes:

Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.

MATERIAL DATA

for propylene glycol:

Saturated vapour concentration @ 20 deg C.= 65.8 ppm, 204.6 mg/m3; i.e higher concentrations can only occur as aerosols or at higher temperatures.

Odour Threshold: Practically odourless.

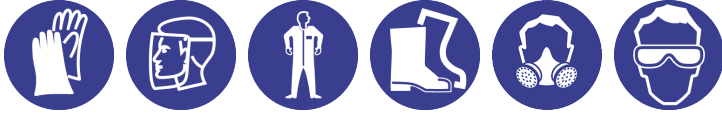
A small number of individuals show skin irritation or sensitisation from repeated or prolonged exposure to propylene glycol. A workplace environmental exposure limit (WEEL) has been established by AIHA and is thought to be protective against systemic effects.

Exposure controls

| | |
|---|---|
| Appropriate engineering controls | Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to |
|---|---|

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|--------------------------------|---|
| | <p>provide this high level of protection.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.</p> |
| Personal protection |  |
| Eye and face protection | <ul style="list-style-type: none"> ▸ Safety glasses with side shields. ▸ Chemical goggles. ▸ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. |
| Skin protection | See Hand protection below |
| Hands/feet protection | <ul style="list-style-type: none"> ▸ Wear chemical protective gloves, e.g. PVC. ▸ Wear safety footwear or safety gumboots, e.g. Rubber <p>NOTE:</p> <ul style="list-style-type: none"> ▸ The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact. ▸ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed. <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Personal hygiene is a key element of effective hand care.</p> |
| Body protection | See Other protection below |
| Other protection | <ul style="list-style-type: none"> ▸ Overalls. ▸ P.V.C apron. ▸ Barrier cream. ▸ Skin cleansing cream. |

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

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| Material | CPI |
|------------|-----|
| PE/EVAL/PE | A |

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Respiratory protection

Type A Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant.

Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

| Required minimum protection factor | Maximum gas/vapour concentration present in air p.p.m. (by volume) | Half-face Respirator | Full-Face Respirator |
|------------------------------------|--|----------------------|----------------------|
| up to 10 | 1000 | A-AUS / Class1 | - |
| up to 50 | 1000 | - | A-AUS / Class 1 |
| up to 50 | 5000 | Airline * | - |
| up to 100 | 5000 | - | A-2 |
| up to 100 | 10000 | - | A-3 |
| 100+ | | | Airline** |

* - Continuous Flow ** - Continuous-flow or positive pressure demand
 A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that

Continued...

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the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.

- ▶ Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

| | | | |
|---|-------------------|--|---------------|
| Appearance | Clear light amber | | |
| Physical state | Liquid | Relative density (Water = 1) | 1.02 |
| Odour | Characteristic | Partition coefficient n-octanol / water | Not Available |
| Odour threshold | Not Available | Auto-ignition temperature (°C) | Not Available |
| pH (as supplied) | Not Available | Decomposition temperature | Not Available |
| Melting point / freezing point (°C) | Not Available | Viscosity (cSt) | Not Available |
| Initial boiling point and boiling range (°C) | Not Available | Molecular weight (g/mol) | Not Available |
| Flash point (°C) | 88.4 | Taste | Cigarette |
| Evaporation rate | Not Available | Explosive properties | Not Available |
| Flammability | Combustible. | Oxidising properties | Not Available |
| Upper Explosive Limit (%) | Not Available | Surface Tension (dyn/cm or mN/m) | Not Available |
| Lower Explosive Limit (%) | Not Available | Volatile Component (%vol) | Not Available |
| Vapour pressure (kPa) | Not Available | Gas group | Not Available |
| Solubility in water | Miscible | pH as a solution (%) | Not Available |
| Vapour density (Air = 1) | Not Available | VOC g/L | Not Available |

SECTION 10 Stability and reactivity

| | |
|---|--|
| Reactivity | See section 7 |
| Chemical stability | <ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur. |
| Possibility of hazardous reactions | See section 7 |
| Conditions to avoid | See section 7 |
| Incompatible materials | See section 7 |
| Hazardous decomposition products | See section 5 |

SECTION 11 Toxicological information

Information on toxicological effects

| | |
|----------------|--|
| Inhaled | The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives |
|----------------|--|

Continued...

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| | |
|--------------|--|
| | <p>using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.</p> <p>Exposure to aliphatic alcohols with more than 3 carbons may produce central nervous system effects such as headache, dizziness, drowsiness, muscle weakness, delirium, CNS depression, coma, seizure, and neurobehavioural changes. Symptoms are more acute with higher alcohols. Respiratory tract involvement may produce irritation of the mucosa, respiratory insufficiency, respiratory depression secondary to CNS depression, pulmonary oedema, chemical pneumonitis and bronchitis. Cardiovascular involvement may result in arrhythmias and hypotension.</p> <p>Inhalation hazard is increased at higher temperatures.</p> <p>Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.</p> |
| Ingestion | <p>Ingestion of propylene glycol produced reversible central nervous system depression in humans following ingestion of 60 ml. Symptoms included increased heart-rate (tachycardia), excessive sweating (diaphoresis) and grand mal seizures in a 15 month child who ingested large doses (7.5 ml/day for 8 days) as an ingredient of vitamin preparation.</p> <p>Excessive repeated ingestions may cause hypoglycaemia (low levels of glucose in the blood stream) among susceptible individuals; this may result in muscular weakness, incoordination and mental confusion.</p> <p>Very high doses given during feeding studies to rats and dogs produce central nervous system depression (although one-third of that produced by ethanol), haemolysis and insignificant kidney changes.</p> <p>The toxic effects of glycols (dihydric alcohols), following ingestion are similar to those of alcohol, with depression of the central nervous system (CNS), nausea, vomiting and degenerative changes in liver and kidney.</p> <p>Effects on the nervous system characterise over-exposure to higher aliphatic alcohols. These include headache, muscle weakness, giddiness, ataxia, (loss of muscle coordination), confusion, delirium and coma. Gastrointestinal effects may include nausea, vomiting and diarrhoea. In the absence of effective treatment, respiratory arrest is the most common cause of death in animals acutely poisoned by the higher alcohols.</p> <p>The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Accidental ingestion of the material may be damaging to the health of the individual.</p> |
| Skin Contact | <p>The material may accentuate any pre-existing dermatitis condition</p> <p>Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.</p> <p>A single prolonged exposure is not likely to result in the material being absorbed in harmful amounts. However the material may be absorbed in potentially harmful amounts when applied in large quantities to severe burns (second or third degree) over large areas of the body as part of a cream, other topical application or by prolonged contact with clothing accidentally wetted by the material. Absorption under such circumstances can elevated serum osmolality and may result in osmotic shock.</p> <p>Most liquid alcohols appear to act as primary skin irritants in humans. Significant percutaneous absorption occurs in rabbits but not apparently in man.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.</p> <p>The material produces moderate skin irritation; evidence exists, or practical experience predicts, that the material either</p> <ul style="list-style-type: none"> ▸ produces moderate inflammation of the skin in a substantial number of individuals following direct contact, and/or ▸ produces significant, but moderate, inflammation when applied to the healthy intact skin of animals (for up to four hours), such inflammation being present twenty-four hours or more after the end of the exposure period. <p>Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.</p> |
| Eye | <p>When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation.</p> <p>Irritation of the eyes may produce a heavy secretion of tears (lachrymation).</p> |
| Chronic | <p>Practical experience shows that skin contact with the material is capable either of inducing a sensitisation reaction in a substantial number of individuals, and/or of producing a positive response in experimental animals.</p> <p>Substances that can cause occupational asthma (also known as asthmagens and respiratory sensitisers) can induce a state of specific airway hyper-responsiveness via an immunological, irritant or other mechanism. Once the airways have become hyper-responsive, further exposure to the substance, sometimes even to tiny quantities, may cause respiratory symptoms. These symptoms can range in severity from a runny nose to asthma.</p> <p>Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.</p> <p>Serious damage (clear functional disturbance or morphological change which may have toxicological significance) is likely to be caused by repeated or prolonged exposure. As a rule the material produces, or contains a substance which produces severe lesions. Such damage may become apparent following direct application in subchronic (90 day) toxicity studies or following sub-acute (28 day) or chronic (two-year) toxicity tests.</p> <p>Propylene glycol is though, by some, to be a sensitising principal following the regular use of topical creams by eczema patients. A study of 866 persons using a formulation containing propylene glycol in a patch test indicated that propylene glycol caused primary irritation in 16% of exposed individuals probably caused by dehydration. Undiluted propylene glycol was tested on 1556 persons in a 24 hour patch test. 12.5% showed reactions which were largely toxic (70%) or allergic in nature (30%).</p> |

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| | | |
|-------------------|---|--|
| FW-7 N&A 7 Flavor | TOXICITY | IRRITATION |
| | Not Available | Not Available |
| propylene glycol | TOXICITY | IRRITATION |
| | Dermal (rabbit) LD50: >2000 mg/kg ^[1] | Eye (rabbit): 100 mg - mild |
| | Inhalation(Rat) LC50; >44.9 mg/L4h ^[2] | Eye (rabbit): 500 mg/24h - mild |
| | Oral(Rat) LD50; >10400 mg/kg ^[2] | Eye: no adverse effect observed (not irritating) ^[1] |
| | | Skin(human):104 mg/3d Intermit Mod |
| | | Skin(human):500 mg/7days mild |
| | | Skin: no adverse effect observed (not irritating) ^[1] |
| Legend: | 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances | |

| | | | |
|--------------------------------------|---|--------------------------|---|
| FW-7 N&A 7 Flavor | The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. | | |
| PROPYLENE GLYCOL | The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling the epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis. | | |
| FW-7 N&A 7 Flavor & PROPYLENE GLYCOL | The acute oral toxicity of propylene glycol is very low, and large quantities are required to cause perceptible health damage in humans. Serious toxicity generally occurs only at plasma concentrations over 1 g/L, which requires extremely high intake over a relatively short period of time. It would be nearly impossible to reach toxic levels by consuming foods or supplements, which contain at most 1 g/kg of PG. Cases of propylene glycol poisoning are usually related to either inappropriate intravenous administration or accidental ingestion of large quantities by children. The potential for long-term oral toxicity is also low. | | |
| Acute Toxicity | ✘ | Carcinogenicity | ✘ |
| Skin Irritation/Corrosion | ✔ | Reproductivity | ✘ |
| Serious Eye Damage/Irritation | ✔ | STOT - Single Exposure | ✘ |
| Respiratory or Skin sensitisation | ✔ | STOT - Repeated Exposure | ✘ |
| Mutagenicity | ✘ | Aspiration Hazard | ✘ |

Legend: ✘ – Data either not available or does not fill the criteria for classification
✔ – Data available to make classification

SECTION 12 Ecological information

Toxicity

| | | | | | |
|-------------------|---|---------------------------|-------------------------------|---------------|---------------|
| FW-7 N&A 7 Flavor | Endpoint | Test Duration (hr) | Species | Value | Source |
| | Not Available | Not Available | Not Available | Not Available | Not Available |
| propylene glycol | Endpoint | Test Duration (hr) | Species | Value | Source |
| | NOEC(ECx) | 336h | Algae or other aquatic plants | <5300mg/l | 1 |
| | EC50 | 72h | Algae or other aquatic plants | 19300mg/l | 2 |
| | LC50 | 96h | Fish | >10000mg/l | 2 |
| | EC50 | 48h | Crustacea | >114.4mg/L | 4 |
| | EC50 | 96h | Algae or other aquatic plants | 19000mg/l | 2 |
| Legend: | Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data | | | | |

Propylene glycol is known to exert high levels of biochemical oxygen demand (BOD) during degradation in surface waters. This process can adversely affect

Continued...

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aquatic life by consuming oxygen needed by aquatic organisms for survival. Large quantities of dissolved oxygen (DO) in the water column are consumed when microbial populations decompose propylene glycol.

Sufficient dissolved oxygen levels in surface waters are critical for the survival of fish, macro-invertebrates, and other aquatic organisms.

Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|------------------|-------------------------|------------------|
| propylene glycol | LOW | LOW |

Bioaccumulative potential

| Ingredient | Bioaccumulation |
|------------------|-----------------|
| propylene glycol | LOW (BCF = 1) |

Mobility in soil

| Ingredient | Mobility |
|------------------|----------------|
| propylene glycol | HIGH (KOC = 1) |

SECTION 13 Disposal considerations**Waste treatment methods**

| | |
|-------------------------------------|--|
| Product / Packaging disposal | <ul style="list-style-type: none"> ▸ Containers may still present a chemical hazard/ danger when empty. ▸ Return to supplier for reuse/ recycling if possible. <p>Otherwise:</p> <ul style="list-style-type: none"> ▸ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. ▸ Where possible retain label warnings and SDS and observe all notices pertaining to the product. <p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.</p> <p>A Hierarchy of Controls seems to be common - the user should investigate:</p> <ul style="list-style-type: none"> ▸ Reduction ▸ Reuse ▸ Recycling ▸ Disposal (if all else fails) <p>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.</p> <ul style="list-style-type: none"> ▸ DO NOT allow wash water from cleaning or process equipment to enter drains. ▸ It may be necessary to collect all wash water for treatment before disposal. ▸ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▸ Where in doubt contact the responsible authority. ▸ Recycle wherever possible or consult manufacturer for recycling options. ▸ Consult State Land Waste Authority for disposal. ▸ Bury or incinerate residue at an approved site. ▸ Recycle containers if possible, or dispose of in an authorised landfill. |
|-------------------------------------|--|

SECTION 14 Transport information**Labels Required**

| | |
|-------------------------|----|
| Marine Pollutant | NO |
|-------------------------|----|

Land transport (DOT): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

| Product name | Group |
|------------------|---------------|
| propylene glycol | Not Available |

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Transport in bulk in accordance with the ICG Code

| Product name | Ship Type |
|------------------|---------------|
| propylene glycol | Not Available |

SECTION 15 Regulatory information

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

propylene glycol is found on the following regulatory lists

| | |
|--|--|
| US AIHA Workplace Environmental Exposure Levels (WEELs) | US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory |
| US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs) | US Toxicology Excellence for Risk Assessment (TERA) Workplace Environmental Exposure Levels (WEEL) |
| US DOE Temporary Emergency Exposure Limits (TEELs) | US TSCA Chemical Substance Inventory - Interim List of Active Substances |
| US EPA Integrated Risk Information System (IRIS) | |

Federal Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Section 311/312 hazard categories

| | |
|--|-----|
| Flammable (Gases, Aerosols, Liquids, or Solids) | Yes |
| Gas under pressure | No |
| Explosive | No |
| Self-heating | No |
| Pyrophoric (Liquid or Solid) | No |
| Pyrophoric Gas | No |
| Corrosive to metal | No |
| Oxidizer (Liquid, Solid or Gas) | No |
| Organic Peroxide | No |
| Self-reactive | No |
| In contact with water emits flammable gas | No |
| Combustible Dust | No |
| Carcinogenicity | No |
| Acute toxicity (any route of exposure) | No |
| Reproductive toxicity | No |
| Skin Corrosion or Irritation | Yes |
| Respiratory or Skin Sensitization | Yes |
| Serious eye damage or eye irritation | Yes |
| Specific target organ toxicity (single or repeated exposure) | No |
| Aspiration Hazard | No |
| Germ cell mutagenicity | No |
| Simple Asphyxiant | No |
| Hazards Not Otherwise Classified | No |

US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)

None Reported

State Regulations

US. California Proposition 65

None Reported

National Inventory Status

| National Inventory | Status |
|---|--------|
| Australia - AIIC / Australia Non-Industrial Use | Yes |
| Canada - DSL | Yes |

Continued...

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| National Inventory | Status |
|-------------------------------|---|
| Canada - NDSL | No (propylene glycol) |
| China - IECSC | Yes |
| Europe - EINEC / ELINCS / NLP | Yes |
| Japan - ENCS | Yes |
| Korea - KECI | Yes |
| New Zealand - NZIoC | Yes |
| Philippines - PICCS | Yes |
| USA - TSCA | Yes |
| Taiwan - TCSI | Yes |
| Mexico - INSQ | Yes |
| Vietnam - NCI | Yes |
| Russia - FBEPH | Yes |
| Legend: | Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration. |

SECTION 16 Other information

| | |
|----------------------|------------|
| Revision Date | 08/19/2021 |
| Initial Date | 10/31/2019 |

SDS Version Summary

| Version | Date of Update | Sections Updated |
|----------|----------------|---|
| 1.2.10.9 | 08/19/2021 | Acute Health (inhaled), Acute Health (swallowed), Advice to Doctor, Chronic Health, Environmental, Exposure Standard, Fire Fighter (fire/explosion hazard), First Aid (swallowed), Personal Protection (Respirator), Name |

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
 PC—STEL: Permissible Concentration-Short Term Exposure Limit
 IARC: International Agency for Research on Cancer
 ACGIH: American Conference of Governmental Industrial Hygienists
 STEL: Short Term Exposure Limit
 TEEL: Temporary Emergency Exposure Limit
 IDLH: Immediately Dangerous to Life or Health Concentrations
 ES: Exposure Standard
 OSF: Odour Safety Factor
 NOAEL :No Observed Adverse Effect Level
 LOAEL: Lowest Observed Adverse Effect Level
 TLV: Threshold Limit Value
 LOD: Limit Of Detection
 OTV: Odour Threshold Value
 BCF: BioConcentration Factors
 BEI: Biological Exposure Index
 AII: Australian Inventory of Industrial Chemicals
 DSL: Domestic Substances List
 NDSL: Non-Domestic Substances List
 IECSC: Inventory of Existing Chemical Substance in China
 EINECS: European Inventory of Existing Commercial chemical Substances
 ELINCS: European List of Notified Chemical Substances
 NLP: No-Longer Polymers

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ENCS: Existing and New Chemical Substances Inventory

KECI: Korea Existing Chemicals Inventory

NZIoC: New Zealand Inventory of Chemicals

PICCS: Philippine Inventory of Chemicals and Chemical Substances

TSCA: Toxic Substances Control Act

TCSI: Taiwan Chemical Substance Inventory

INSQ: Inventario Nacional de Sustancias Químicas

NCI: National Chemical Inventory

FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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