



## FW-BRA N&A Brandy Flavor

Flavor West Manufacturing, LLC.

Version No: 1.1

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

Chemwatch Hazard Alert Code: 2

Issue Date: 01/14/2020

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Initial Date: 01/14/2020

L.GHS.USA.EN

### SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

#### Product Identifier

Product name	FW-BRA N&A Brandy Flavor
Synonyms	Not Available
Proper shipping name	Extracts, flavoring, liquid
Other means of identification	Not Available

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

Relevant identified uses	Use according to manufacturers directions.
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#### Details of the manufacturer/importer

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 telephone number

Association / Organisation	Chemwatch
Emergency telephone numbers	see below
Other emergency telephone numbers	see below

#### CHEMWATCH EMERGENCY RESPONSE

Primary Number	Alternative Number 1	Alternative Number 2
877 715 9305	+612 9186 1132	Not Available

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 HAZARDS IDENTIFICATION

#### Classification of the substance or mixture

Continued...

## FW-BRA N&amp;A Brandy Flavor



<b>GHS Classification</b>	Eye Irritation Category 2A, Flammable Liquid Category 3
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## Label elements

<b>GHS label elements</b>	 
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<b>SIGNAL WORD</b>	<b>WARNING</b>
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## Hazard statement(s)

<b>H319</b>	Causes serious eye irritation
<b>H226</b>	Flammable liquid and vapour

## Precautionary statement(s) Prevention

<b>P210</b>	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
<b>P233</b>	Keep container tightly closed.
<b>P240</b>	Ground/bond container and receiving equipment.
<b>P241</b>	Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment.
<b>P242</b>	Use only non-sparking tools.
<b>P243</b>	Take precautionary measures against static discharge.
<b>P280</b>	Wear protective gloves/protective clothing/eye protection/face protection.

## Precautionary statement(s) Response

<b>P370+P378</b>	In case of fire: Use alcohol resistant foam or normal protein foam for extinction.
<b>P305+P351+P338</b>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
<b>P337+P313</b>	If eye irritation persists: Get medical advice/attention.
<b>P303+P361+P353</b>	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

## Precautionary statement(s) Storage

<b>P403+P235</b>	Store in a well-ventilated place. Keep cool.
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## Precautionary statement(s) Disposal

<b>P501</b>	Dispose of contents/container to authorised chemical landfill or if organic to high temperature incineration
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## 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>
105-54-4	1-5	<u>ethyl butyrate</u>
105-37-3	1-5	<u>ethyl propionate</u>
123-51-3	1-5	<u>iso-amyl alcohol</u>
8030-89-5	5-10	<u>rum ether</u>

Continued...

## FW-BRA N&amp;A Brandy Flavor

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

<b>Eye Contact</b>	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Wash out immediately with fresh running water.</li> <li>▶ 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.</li> <li>▶ Seek medical attention without delay; if pain persists or recurs seek medical attention.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
<b>Skin Contact</b>	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately remove all contaminated clothing, including footwear.</li> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>▶ Transport to hospital, or doctor.</li> </ul>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>▶ <b>If swallowed do NOT induce vomiting.</b></li> <li>▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> <li>▶ Observe the patient carefully.</li> <li>▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</li> <li>▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</li> <li>▶ Seek medical advice.</li> </ul>

### Most important symptoms and effects, both acute and delayed

See Section 11

### Indication of any immediate medical attention and special treatment needed

- ▶ 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 FIREFIGHTING MEASURES

### Extinguishing media

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

### Special hazards arising from the substrate or mixture

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

### Advice for firefighters

- |                      |   |
|----------------------|---|
| <b>Fire Fighting</b> | <ul style="list-style-type: none"> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> </ul> |
|----------------------|---|

Continued...

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	<ul style="list-style-type: none"> <li>▶ May be violently or explosively reactive.</li> <li>▶ Wear breathing apparatus plus protective gloves.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> </ul>
<b>Fire/Explosion Hazard</b>	<ul style="list-style-type: none"> <li>▶ Liquid and vapour are flammable.</li> <li>▶ Moderate fire hazard when exposed to heat or flame.</li> <li>▶ Vapour forms an explosive mixture with air.</li> <li>▶ Moderate explosion hazard when exposed to heat or flame.</li> </ul>

## SECTION 6 ACCIDENTAL RELEASE MEASURES

## Personal precautions, protective equipment and emergency procedures

<b>Minor Spills</b>	<ul style="list-style-type: none"> <li>▶ Remove all ignition sources.</li> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid breathing vapours and contact with skin and eyes.</li> <li>▶ Control personal contact with the substance, by using protective equipment.</li> </ul>																																																																											
<b>Major Spills</b>	<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>pitchfork</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>skid loader</td> <td>R, W, SS</td> </tr> <tr> <td>polypropylene - particulate</td> <td>2</td> <td>blower</td> <td>skid loader</td> <td>W, SS, DGC</td> </tr> <tr> <td>sorbent clay - particulate</td> <td>2</td> <td>blower</td> <td>skid loader</td> <td>R, I, W, P, DGC</td> </tr> <tr> <td>polypropylene - mat</td> <td>3</td> <td>throw</td> <td>skid loader</td> <td>DGC, RT</td> </tr> <tr> <td>expanded mineral - particulate</td> <td>3</td> <td>blower</td> <td>skid loader</td> <td>R, I, W, P, DGC</td> </tr> <tr> <td>polyurethane - mat</td> <td>4</td> <td>throw</td> <td>skid loader</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</p> <ul style="list-style-type: none"> <li>▶ Clear area of personnel and move upwind.</li> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ May be violently or explosively reactive.</li> </ul>	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	pitchfork	R, P, DGC, RT	LAND SPILL - MEDIUM					cross-linked polymer - particulate	1	blower	skid loader	R, W, SS	polypropylene - particulate	2	blower	skid loader	W, SS, DGC	sorbent clay - particulate	2	blower	skid loader	R, I, W, P, DGC	polypropylene - mat	3	throw	skid loader	DGC, RT	expanded mineral - particulate	3	blower	skid loader	R, I, W, P, DGC	polyurethane - mat	4	throw	skid loader	DGC, RT
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	Personal Protective Equipment advice is contained in Section 8 of the MSDS.																																																																											

## SECTION 7 HANDLING AND STORAGE

## Precautions for safe handling

<b>Safe handling</b>	<ul style="list-style-type: none"> <li>▶ Containers, even those that have been emptied, may contain explosive vapours.</li> <li>▶ Do NOT cut, drill, grind, weld or perform similar operations on or near containers.</li> <li>▶ <b>DO NOT allow clothing wet with material to stay in contact with skin</b></li> <li>▶ Avoid all personal contact, including inhalation.</li> <li>▶ Wear protective clothing when risk of overexposure occurs.</li> </ul>
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## FW-BRA N&amp;A Brandy Flavor

## Other information

- ▶ Store in original containers in approved flammable liquid storage area.
- ▶ Store away from incompatible materials in a cool, dry, well-ventilated area.
- ▶ **DO NOT store in pits, depressions, basements or areas where vapours may be trapped.**
- ▶ No smoking, naked lights, heat or ignition sources.

## Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> <li>▶ Packing as supplied by manufacturer.</li> <li>▶ Plastic containers may only be used if approved for flammable liquid.</li> <li>▶ Check that containers are clearly labelled and free from leaks.</li> <li>▶ For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type.</li> </ul>
Storage incompatibility	<ul style="list-style-type: none"> <li>▶ 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.</li> </ul> <p>Alcohols</p> <ul style="list-style-type: none"> <li>▶ are incompatible with strong acids, acid chlorides, acid anhydrides, oxidising and reducing agents.</li> <li>▶ reacts, possibly violently, with alkaline metals and alkaline earth metals to produce hydrogen</li> <li>▶ 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</li> <li>▶ should not be heated above 49 deg.</li> </ul>

## SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

## Control parameters

## OCCUPATIONAL EXPOSURE LIMITS (OEL)

## INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US OSHA Permissible Exposure Levels (PELs) - Table Z1	iso-amyl alcohol	Isoamyl alcohol	360 mg/m3 / 100 ppm	Not Available	Not Available	(primary and secondary)
US ACGIH Threshold Limit Values (TLV)	iso-amyl alcohol	Isoamyl alcohol	100 ppm	125 ppm	Not Available	TLV® Basis: Eye & URT irr
US NIOSH Recommended Exposure Limits (RELs)	iso-amyl alcohol	Fermentation amyl alcohol, Fusel oil, Isobutyl carbinol, Isopentyl alcohol, 3-Methyl-1-butanol, Primary isoamyl alcohol	360 mg/m3 / 100 ppm	450 mg/m3 / 125 ppm	Not Available	Not Available

## EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
propylene glycol	Propylene glycol; (1,2-Propanediol)	30 mg/m3	1300 mg/m3	7900 mg/m3
ethyl propionate	Ethyl propionate	6.3 ppm	69 ppm	410 ppm
iso-amyl alcohol	Isoamyl alcohol (primary); (3-Methyl-1-butanol)	125 ppm	125 ppm	10000 ppm

Ingredient	Original IDLH	Revised IDLH
propylene glycol	Not Available	Not Available
ethyl butyrate	Not Available	Not Available
ethyl propionate	Not Available	Not Available
iso-amyl alcohol	10,000 ppm	500 ppm
rum ether	Not Available	Not Available

## MATERIAL DATA

For isoamyl alcohol:

Odour Threshold Value: 0.022 ppm (detection), 0.044 ppm (recognition)

A short-term exposure level (STEL) is considered necessary because the chemically induced eye and throat irritation associated with exposure is an acute effect that occurs at concentrations only slightly higher than the 100 ppm 8-hour TWA. Additionally, significant narcosis occurs at levels permitted by the absence of a STEL.

Odour Safety Factor(OSF)

OSF=2.4E3 (ISOAMYL ALCOHOL)

for propylene glycol:

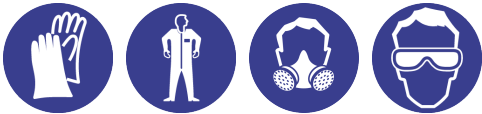
Saturated vapour concentration @ 20 deg C.= 65.8 ppm, 204.6 mg/m3; i.e higher concentrations can only occur as aerosols or at higher temperatures.

Continued...

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Odour Threshold: Practically odourless.

## Exposure controls

<b>Appropriate engineering controls</b>	<p>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 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>
<b>Personal protection</b>	
<b>Eye and face protection</b>	<ul style="list-style-type: none"> <li>▶ Safety glasses with side shields.</li> <li>▶ Chemical goggles.</li> <li>▶ 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.</li> </ul>
<b>Skin protection</b>	See Hand protection below
<b>Hands/feet protection</b>	<ul style="list-style-type: none"> <li>▶ Wear chemical protective gloves, e.g. PVC.</li> <li>▶ Wear safety footwear or safety gumboots, e.g. Rubber</li> </ul> <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>▶ 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.</li> <li>▶ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.</li> </ul>
<b>Body protection</b>	See Other protection below
<b>Other protection</b>	<ul style="list-style-type: none"> <li>▶ Overalls.</li> <li>▶ PVC Apron.</li> <li>▶ PVC protective suit may be required if exposure severe.</li> <li>▶ Eyewash unit.</li> </ul>
<b>Thermal hazards</b>	Not Available

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

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 5 x ES	A-AUS / Class 1 P2	-	A-PAPR-AUS / Class 1 P2
up to 25 x ES	Air-line*	A-2 P2	A-PAPR-2 P2
up to 50 x ES	-	A-3 P2	-
50+ x ES	-	Air-line**	-

\* - Continuous-flow; \*\* - Continuous-flow or positive pressure demand

^ - Full-face

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)

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

<b>Appearance</b>	Clear light yellow
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## FW-BRA N&amp;A Brandy Flavor

<b>Physical state</b>	Liquid	<b>Relative density (Water = 1)</b>	1.01
<b>Odour</b>	Characteristic	<b>Partition coefficient n-octanol / water</b>	Not Available
<b>Odour threshold</b>	Not Available	<b>Auto-ignition temperature (°C)</b>	Not Available
<b>pH (as supplied)</b>	Not Available	<b>Decomposition temperature</b>	Not Available
<b>Melting point / freezing point (°C)</b>	Not Available	<b>Viscosity (cSt)</b>	Not Available
<b>Initial boiling point and boiling range (°C)</b>	Not Available	<b>Molecular weight (g/mol)</b>	Not Available
<b>Flash point (°C)</b>	25.61	<b>Taste</b>	Brandy
<b>Evaporation rate</b>	Not Available	<b>Explosive properties</b>	Not Available
<b>Flammability</b>	Flammable.	<b>Oxidising properties</b>	Not Available
<b>Upper Explosive Limit (%)</b>	Not Available	<b>Surface Tension (dyn/cm or mN/m)</b>	Not Available
<b>Lower Explosive Limit (%)</b>	Not Available	<b>Volatile Component (%vol)</b>	Not Available
<b>Vapour pressure (kPa)</b>	Not Available	<b>Gas group</b>	Not Available
<b>Solubility in water (g/L)</b>	Miscible	<b>pH as a solution (1%)</b>	Not Available
<b>Vapour density (Air = 1)</b>	Not Available	<b>VOC g/L</b>	Not Available

## SECTION 10 STABILITY AND REACTIVITY

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

## SECTION 11 TOXICOLOGICAL INFORMATION

## Information on toxicological effects

<b>Inhaled</b>	<p>The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of vapours, fumes or aerosols, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.</p> <p>Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo.</p>
<b>Ingestion</b>	<p>Accidental ingestion of the material may be damaging to the health of the individual.</p> <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>
<b>Skin Contact</b>	<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>The material may produce moderate skin irritation; limited evidence or practical experience suggests, that the material either:</p> <ul style="list-style-type: none"> <li>▶ produces moderate inflammation of the skin in a substantial number of individuals following direct contact and/or</li> <li>▶ 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.</li> </ul> <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.</p>

Continued...

## FW-BRA N&amp;A Brandy Flavor

<b>Eye</b>	Irritation of the eyes may produce a heavy secretion of tears (lachrymation). Limited evidence or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.
<b>Chronic</b>	Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. There exists limited evidence that shows that skin contact with the material is capable either of inducing a sensitisation reaction in a significant number of individuals, and/or of producing positive response in experimental animals. 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.

<b>FW-BRA N&amp;A Brandy Flavor</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available
<b>propylene glycol</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: >2000 mg/kg <sup>[1]</sup>	Eye (rabbit): 100 mg - mild
	Oral (rat) LD50: 20000 mg/kgd <sup>[2]</sup>	Eye (rabbit): 500 mg/24h - mild
		Skin(human):104 mg/3d Intermit Mod
		Skin(human):500 mg/7days mild
<b>ethyl butyrate</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: >2000 mg/kg <sup>[2]</sup>	Nil reported
	Oral (rat) LD50: 13000 mg/kgd <sup>[2]</sup>	
<b>ethyl propionate</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Oral (rat) LD50: 8732 mg/kg <sup>[2]</sup>	Skin (rabbit):500 mg/24h-moderate
<b>iso-amyl alcohol</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: 3212 mg/kg <sup>[2]</sup>	Eye (human): 150 ppm
	Oral (rat) LD50: 1300 mg/kgm <sup>[2]</sup>	EYE (RABBIT): 20 MG/24H - moderate
		SKIN (RABBIT): 20 MG/24H - moderate
<b>rum ether</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Oral (rat) LD50: 14700 mg/kg <sup>[2]</sup>	Not Available
<b>Legend:</b>	1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's msds. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances	

<b>FW-BRA N&amp;A Brandy Flavor</b>	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.
<b>PROPYLENE GLYCOL</b>	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. The acute oral toxicity of propylene glycol is very low, and large quantities are required to cause perceptible health damage in humans.
<b>ISO-AMYL ALCOHOL</b>	Olfaction effects, conjunctival irritation, antipsychotic effects, respiratory tract changes, fatty liver degeneration, urinary tract changes, blood changes recorded.



## FW-BRA N&amp;A Brandy Flavor

ETHYL BUTYRATE &  
ETHYL PROPIONATE &  
ISO-AMYL ALCOHOL

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS.

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 required to make classification available  
 ✗ – Data available but does not fill the criteria for classification  
 ⊘ – Data Not Available to make classification

## SECTION 12 ECOLOGICAL INFORMATION

## Toxicity

## NOT AVAILABLE

Ingredient	Endpoint	Test Duration	Effect	Value	Species	BCF
propylene glycol	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
ethyl butyrate	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
ethyl propionate	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
iso-amyl alcohol	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
rum ether	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Propylene glycol is known to exert high levels of biochemical oxygen demand (BOD) during degradation in surface waters. This process can adversely affect 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
ethyl butyrate	LOW	LOW
ethyl propionate	LOW	LOW
iso-amyl alcohol	LOW	LOW

## Bioaccumulative potential

Ingredient	Bioaccumulation
propylene glycol	LOW (BCF = 1)
ethyl butyrate	LOW (LogKOW = 1.8464)
ethyl propionate	LOW (LogKOW = 1.21)
iso-amyl alcohol	LOW (LogKOW = 1.16)

## Mobility in soil

Ingredient	Mobility
propylene glycol	HIGH (KOC = 1)
ethyl butyrate	LOW (KOC = 21.85)
ethyl propionate	LOW (KOC = 11.85)

Continued...

## FW-BRA N&amp;A Brandy Flavor

iso-amyl alcohol

MEDIUM (KOC = 3.777)


## SECTION 13 DISPOSAL CONSIDERATIONS

## Waste treatment methods

<b>Product / Packaging disposal</b>	<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"> <li>▶ Reduction</li> <li>▶ Reuse</li> <li>▶ Recycling</li> <li>▶ Disposal (if all else fails)</li> </ul> <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>
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## SECTION 14 TRANSPORT INFORMATION

## Labels Required

	
<b>Marine Pollutant</b>	NO

## Land transport (DOT)

<b>UN number</b>	1197				
<b>Packing group</b>	III				
<b>UN proper shipping name</b>	Extracts, flavoring, liquid				
<b>Environmental hazard</b>	No relevant data				
<b>Transport hazard class(es)</b>	<table border="1"> <tr> <td>Class</td> <td>3</td> </tr> <tr> <td>Subrisk</td> <td>Not Applicable</td> </tr> </table>	Class	3	Subrisk	Not Applicable
Class	3				
Subrisk	Not Applicable				
<b>Special precautions for user</b>	<table border="1"> <tr> <td>Special provisions</td> <td>B1, IB3, T2, TP1</td> </tr> </table>	Special provisions	B1, IB3, T2, TP1		
Special provisions	B1, IB3, T2, TP1				

## Air transport (ICAO-IATA / DGR)

<b>UN number</b>	1197														
<b>Packing group</b>	III														
<b>UN proper shipping name</b>	Extracts, flavouring, liquid														
<b>Environmental hazard</b>	No relevant data														
<b>Transport hazard class(es)</b>	<table border="1"> <tr> <td>ICAO/IATA Class</td> <td>3</td> </tr> <tr> <td>ICAO / IATA Subrisk</td> <td>Not Applicable</td> </tr> <tr> <td>ERG Code</td> <td>3L</td> </tr> </table>	ICAO/IATA Class	3	ICAO / IATA Subrisk	Not Applicable	ERG Code	3L								
ICAO/IATA Class	3														
ICAO / IATA Subrisk	Not Applicable														
ERG Code	3L														
<b>Special precautions for user</b>	<table border="1"> <tr> <td>Special provisions</td> <td>A3</td> </tr> <tr> <td>Cargo Only Packing Instructions</td> <td>366</td> </tr> <tr> <td>Cargo Only Maximum Qty / Pack</td> <td>220 L</td> </tr> <tr> <td>Passenger and Cargo Packing Instructions</td> <td>355</td> </tr> <tr> <td>Passenger and Cargo Maximum Qty / Pack</td> <td>60 L</td> </tr> <tr> <td>Passenger and Cargo Limited Quantity Packing Instructions</td> <td>Y344</td> </tr> <tr> <td>Passenger and Cargo Limited Maximum Qty / Pack</td> <td>10 L</td> </tr> </table>	Special provisions	A3	Cargo Only Packing Instructions	366	Cargo Only Maximum Qty / Pack	220 L	Passenger and Cargo Packing Instructions	355	Passenger and Cargo Maximum Qty / Pack	60 L	Passenger and Cargo Limited Quantity Packing Instructions	Y344	Passenger and Cargo Limited Maximum Qty / Pack	10 L
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Passenger and Cargo Maximum Qty / Pack	60 L														
Passenger and Cargo Limited Quantity Packing Instructions	Y344														
Passenger and Cargo Limited Maximum Qty / Pack	10 L														

## CI-BR-14956 N&amp;A Brandy Flavor

## Sea transport (IMDG-Code / GGVSee)

<b>UN number</b>	1197	
<b>Packing group</b>	III	
<b>UN proper shipping name</b>	EXTRACTS, FLAVOURING, LIQUID	
<b>Environmental hazard</b>	Not Applicable	
<b>Transport hazard class(es)</b>	IMDG Class	3
	IMDG Subrisk	Not Applicable
<b>Special precautions for user</b>	EMS Number	F-E , S-D
	Special provisions	223 955
	Limited Quantities	5 L

## Transport in bulk according to Annex II of MARPOL 73 / 78 and the IBC code

Source	Ingredient	Pollution Category
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	ethyl butyrate	Y
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	ethyl propionate	Y
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	iso-amyl alcohol	Z

## SECTION 15 REGULATORY INFORMATION

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

## PROPYLENE GLYCOL(57-55-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values

US AIHA Workplace Environmental Exposure Levels (WEELs)

US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)

US Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

## ETHYL BUTYRATE(105-54-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

## ETHYL PROPIONATE(105-37-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

## ISO-AMYL ALCOHOL(123-51-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

## CI-BR-14956 N&amp;A Brandy Flavor

US - Alaska Limits for Air Contaminants	US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants
US - California Permissible Exposure Limits for Chemical Contaminants	US - Washington Permissible exposure limits of air contaminants
US - Hawaii Air Contaminant Limits	US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants
US - Idaho - Limits for Air Contaminants	US ACGIH Threshold Limit Values (TLV)
US - Michigan Exposure Limits for Air Contaminants	US EPA Carcinogens Listing
US - Minnesota Permissible Exposure Limits (PELs)	US NIOSH Recommended Exposure Limits (RELs)
US - Oregon Permissible Exposure Limits (Z-1)	US OSHA Permissible Exposure Levels (PELs) - Table Z1
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	

**RUM ETHER(8030-89-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	N (rum ether; propylene glycol; ethyl propionate; ethyl butyrate; iso-amyl alcohol)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	N (rum ether)
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y
<b>Legend:</b>	<i>Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)</i>

**SECTION 16 OTHER INFORMATION****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.

A list of reference resources used to assist the committee may be found at:

[www.chemwatch.net](http://www.chemwatch.net)

The (M)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.

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