APEX FLAVORS, INC.

SAFETY DATA SHEET.

This safety data sheet complies with the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

Revision Date 17-May-2018 **Version** 1

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Code(s) 009PGF
Product name BLUEBERRY, NATURAL FLAVOR BLEND (PROPYLENE GLYCOL FREE)

Pure substance/mixture Mixture
Contains ETHYL ALCOHOL

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

Recommended Use Ingredient for further processing

Uses advised against No information available

1.3. Details of the supplier of the safety data sheet

Manufacturer
Apex Flavors, Inc.
1371 Brass Mill Rd.
Suite A
Belcamp, MD 21017
(410) 565-6600

For further information, please contact:

E-mail Address cpisano@apexflavors.com

1.4. Emergency telephone number

Emergency telephone Chemtrec: 1-800-424-9300 for US/ 703-527-3887 outside US

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Serious eye damage/eye irritation	Category 2 - (H319)
Carcinogenicity	Category 1A - (H350)
Flammable liquids	Category 3 - (H226)

2.2. Label elements

Product identifier
Contains ETHYL ALCOHOL

Signal Word
Danger

Hazard Statements
H319 - Causes serious eye irritation
H350 - May cause cancer
H226 - Flammable liquid and vapor

Precautionary Statements - EU (§28, 1272/2008)
P201 - Obtain special instructions before use
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P370 + P378 - In case of fire: Use .? to extinguish
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

2.3. Other information
No information available

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical Name	EC-No	CAS-No	Weight %	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH Registration Number
ETHYL ALCOHOL	200-578-6	64-17-5	20-30%	Flam. Liq. 2 (H225) Eye Irrit. 1 (H319)	No data available
GLYCERINE	Present	56-81-5	20-30%	No data available	No data available
ISOAMYL ALCOHOL	204-633-5	123-51-3	<1%	Flam. Liq. 3 (H226)(EFFA) Acute Tox. 4 (H332)(EFFA)	No data available
Hexyl alcohol	203-852-3	111-27-3	<1%	Acute Tox. 4 (H302)	No data available
DIMETHYL SULFIDE	200-846-2	75-18-3	<1%	Skin Irrit. 3 (316) (EFFA) Acute Tox. 3 (H301) (EFFA) Flam. Liq. 2 (H225) (EFFA)	No data available
BENZALDEHYDE	202-860-4	100-52-7	<1%	Aquatic Acute 2 (H401) Skin Irrit. 3 (H316) Acute Tox. 4 (H302) Acute Tox. 5 (H313) Flam. Liq. 4 (H227)	No data available
Isoamyl acetate	204-662-3	123-92-2	<1%	Aquatic Acute 3 (H402) Flam. Liq. 3 (H226)	No data available
Acetophenone	202-708-7	98-86-2	<1%	Eye Irrit. 1 (H319) Acute Tox. 4 (H302)	No data available

For the full text of the R-phrases mentioned in this Section, see Section 16

Full text of H- and EUH-phrases: see section 16

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures

General advice Immediate medical attention is required. Show this material safety data sheet to the doctor in attendance.

Inhalation Move to fresh air.

Skin contact Wash off immediately with plenty of water.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids.

Consult a physician.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Self-protection of the first aider Remove all sources of ignition.

4.2. Most important symptoms and effects, both acute and delayed

Main Symptoms No information available.

4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

Section 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
No information available

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit. Use personal protective equipment.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions
Remove all sources of ignition. Evacuate personnel to safe areas. Ensure adequate ventilation.

For emergency responders
Use personal protection recommended in Section 8.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Dam up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Pick up and transfer to properly labeled containers.

6.4. Reference to other sections

See section 8 for more information. See section 13 for more information.

Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on safe handling
Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use only in an area containing flame proof equipment. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

General Hygiene Considerations
When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep tightly closed in a dry and cool place. Keep in properly labeled containers.

Incompatible products
None known based on information supplied.

7.3 Specific end use(s)

Risk Management Methods (RMM)
The information required is contained in this Material Safety Data Sheet.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Chemical Name	European Union	The United Kingdom	France	Spain	Germany
ETHYL ALCOHOL 64-17-5	-	STEL: 3000 ppm STEL: 5760 mg/m³ TWA: 1000 ppm TWA: 1920 mg/m³	VME: 1000 ppm VME: 1900 mg/m³ VLCT: 5000 ppm VLCT: 9500 mg/m³	VLA-ED: 1000 ppm VLA-ED: 1910 mg/m³	-
GLYCERINE 56-81-5	-	STEL: 30 mg/m³ TWA: 10 mg/m³	TWA: 10 mg/m³	TWA: 10 mg/m³	-
ISOAMYL ALCOHOL 123-51-3	-	STEL: 125 ppm STEL: 458 mg/m³ TWA: 100 ppm TWA: 366 mg/m³	TWA: 100 ppm TWA: 360 mg/m³	STEL: 125 ppm STEL: 458 mg/m³ TWA: 100 ppm TWA: 366 mg/m³	-
DIMETHYL SULFIDE 75-18-3	-	-	-	VLA-ED: 10 ppm	-
Isoamyl acetate 123-92-2	TWA 50 ppm TWA 270 mg/m³ STEL 100 ppm STEL 540 mg/m³	-	VME: 50 ppm VME: 270 mg/m³ VLCT: 100 ppm VLCT: 540 mg/m³	VLA-EC: 100 ppm VLA-EC: 540 mg/m³ VLA-ED: 50 ppm VLA-ED: 270 mg/m³	-
Acetophenone 98-86-2	-	-	-	VLA-ED: 10 ppm VLA-ED: 50 mg/m³	-

Chemical Name	Italy	Portugal	The Netherlands	Finland	Denmark
ETHYL ALCOHOL 64-17-5	-	TWA: 1000 ppm	Skin STEL: 1900 mg/m³ TWA: 260 mg/m³	TWA: 1000 ppm TWA: 1900 mg/m³ STEL: 1300 ppm STEL: 2500 mg/m³	TWA: 1000 ppm TWA: 1900 mg/m³
GLYCERINE 56-81-5	-	TWA: 10 mg/m³	-	TWA: 20 mg/m³	-
ISOAMYL ALCOHOL 123-51-3	-	STEL: 125 ppm TWA: 100 ppm	-	TWA: 100 ppm TWA: 370 mg/m³ STEL: 150 ppm STEL: 550 mg/m³	TWA: 100 ppm TWA: 360 mg/m³
DIMETHYL SULFIDE 75-18-3	-	TWA: 10 ppm	-	-	-
BENZALDEHYDE 100-52-7	-	-	-	TWA: 1 ppm TWA: 4.4 mg/m³ STEL: 4 ppm STEL: 17.4 mg/m³ Ceiling: 4 ppm Ceiling: 17.4 mg/m³	-

Isoamyl acetate 123-92-2	TWA: 50 ppm TWA: 270 mg/m³ STEL: 100 ppm STEL: 540 mg/m³	STEL: 100 ppm TWA: 50 ppm	STEL: 530 mg/m³	TWA: 50 ppm TWA: 270 mg/m³ STEL: 100 ppm STEL: 540 mg/m³	TWA: 50 ppm TWA: 266 mg/m³
Acetophenone 98-86-2	-	TWA: 10 ppm	-	TWA: 5 ppm TWA: 25 mg/m³	TWA: 10 ppm TWA: 49 mg/m³
Chemical Name	**Austria**	**Switzerland**	**Poland**	**Norway**	**Ireland**
ETHYL ALCOHOL 64-17-5	STEL 2000 ppm STEL 3800 mg/m³ MAK: 1000 ppm MAK: 1900 mg/m³	STEL: 1000 ppm STEL: 1920 mg/m³ MAK: 500 ppm MAK: 960 mg/m³	NDS: 1900 mg/m³	TWA: 500 ppm TWA: 950 mg/m³ STEL: 625 ppm STEL: 1187.5 mg/m³	TWA: 1000 ppm TWA: 1900 mg/m³
GLYCERINE 56-81-5	-	STEL: 100 mg/m³ TWA: 50 mg/m³	TWA: 10 mg/m³	-	TWA: 10 mg/m³
ISOAMYL ALCOHOL 123-51-3	STEL 200 ppm STEL 720 mg/m³ TWA: 100 ppm TWA: 360 mg/m³	STEL: 80 ppm STEL: 292 mg/m³ TWA: 20 ppm TWA: 73 mg/m³	STEL: 400 mg/m³ TWA: 200 mg/m³	TWA: 50 ppm TWA: 180 mg/m³ STEL: 75 ppm STEL: 225 mg/m³	TWA: 100 ppm TWA: 360 mg/m³ STEL: 125 ppm STEL: 450 mg/m³
DIMETHYL SULFIDE 75-18-3	-	-	-	-	TWA: 20 ppm
BENZALDEHYDE 100-52-7	-	-	NDSCh: 40 mg/m³ NDS: 10 mg/m³	-	-
Isoamyl acetate 123-92-2	STEL 100 ppm STEL 540 mg/m³ MAK: 50 ppm MAK: 270 mg/m³	-	NDSCh: 500 mg/m³ NDS: 250 mg/m³	TWA: 50 ppm TWA: 260 mg/m³ STEL: 75 ppm STEL: 325 mg/m³	TWA: 50 ppm TWA: 260 mg/m³ STEL: 100 ppm STEL: 520 mg/m³
Acetophenone 98-86-2	-	-	NDSCh: 100 mg/m³ NDS: 50 mg/m³	-	TWA: 10 ppm TWA: 49 mg/m³

Derived No Effect Level (DNEL) No information available.

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering Controls Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye/face protection Tightly fitting safety goggles.

Skin and body protection Antistatic boots. Wear fire/ flame resistant/ retardant clothing. Impervious gloves.

Environmental Exposure Controls No information available.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state liquid
Appearance clear
Odor blueberry
Color Colorless to light yellow.

Property	**Values**	**• Method**
pH		No information available
Melting/freezing point		No information available
Boiling point/boiling range		FCC Method
Flash Point	26 °C / 78 °F	Closed cup
Evaporation rate		FCC Method
Flammability (solid, gas)		No information available
Flammability Limits in Air		
Upper flammability limit		No information available
lower flammability limit		No information available
Vapor pressure mm Hg 20°C		No information available

Vapor density		No information available
Relative density		No information available
Specific Gravity @ 25C	0.9535 - 0.9835	FCC Method
Specific Gravity @ 20C	0.9565 - 0.9865	FCC Method
Refractive Index	1.3697 - 1.3997	FCC Method
Water solubility		No information available
Solubility in other solvents		No information available
Partition coefficient: n-octanol/water		No information available
Autoignition temperature		No information available
Decomposition temperature		No information available
Viscosity, kinematic		No information available
Viscosity, dynamic		No information available
Explosive properties	No information available	
Oxidizing Properties	No information available	

9.2. Other information

Softening point	No information available
Molecular Weight	No information available
VOC Content(%)	No information available
Density VALUE	No information available
Bulk Density VALUE	No information available

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity

No data available.

10.2. Chemical stability

Stable under normal conditions.

Explosion data
Sensitivity to Mechanical Impact none.
Sensitivity to Static Discharge Yes.

10.3. Possibility of hazardous reactions

Hazardous Reactions
None under normal processing.

10.4. Conditions to avoid

Heat, flames and sparks.

10.5. Incompatible materials

No information available.

10.6. Hazardous decomposition products

None under normal use conditions.

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity

Product Information

Product does not present an acute toxicity hazard based on known or supplied information.

Inhalation There is no data available for this product.
Eye contact There is no data available for this product.
Skin contact There is no data available for this product.
Ingestion There is no data available for this product.

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral) 6,492.00 mg/kg
ATEmix (dermal) 10,403.00 mg/kg
ATEmix (inhalation-dust/mist) 366.09 mg/l

Unknown Acute Toxicity

99.003% of the mixture consists of ingredient(s) of unknown toxicity.
68.57 % of the mixture consists of ingredient(s) of unknown acute oral toxicity.
74.236 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.
99.003 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas).
99.003 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor).
46.57 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

Chemical Name	Oral LD50	Dermal LD50	LC50 Inhalation
ETHYL ALCOHOL	7060 mg/kg (Rat)		124.7 mg/L (Rat) 4 h
GLYCERINE		10 g/kg (Rabbit)	570 mg/m³ (Rat) 1 h

Skin corrosion/irritation No information available.

Eye damage/irritation No information available.

Sensitization No information available.

Germ Cell Mutagenicity No information available.

Carcinogenicity No information available.

Reproductive toxicity No information available.

Specific target organ systemic toxicity (single exposure) No information available.

Specific target organ systemic toxicity (repeated exposure) No information available.

Target Organ Effects Blood, Central nervous system, Eyes, Kidney, Liver, Reproductive system, Respiratory system, Skin.

Aspiration hazard No information available.

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity Toxic to aquatic life

46.38685% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
ETHYL ALCOHOL	-	12.0 - 16.0: 96 h Oncorhynchus mykiss mL/L LC50 static 100: 96 h Pimephales promelas mg/L LC50 static 13400 - 15100: 96 h	9268 - 14221: 48 h Daphnia magna mg/L LC50 10800: 24 h Daphnia magna mg/L EC50 2: 48 h Daphnia magna mg/L EC50 Static

		Pimephales promelas mg/L LC50 flow-through	
GLYCERINE	-	51 - 57: 96 h Oncorhynchus mykiss mL/L LC50 static	500: 24 h Daphnia magna mg/L EC50
ISOAMYL ALCOHOL	493: 72 h Desmodesmus subspicatus mg/L EC50 181: 96 h Desmodesmus subspicatus mg/L EC50	700: 96 h Salmo gairdneri mg/L LC50 static	260: 48 h Daphnia magna mg/L EC50
Hexyl alcohol	-	144: 96 h Brachydanio rerio mg/L LC50 static 89.7-106: 96 h Pimephales promelas mg/L LC50 flow-through	201: 24 h Daphnia magna mg/L EC50
DIMETHYL SULFIDE	-	-	23: 48 h Daphnia pulex mg/L EC50
BENZALDEHYDE	-	0.8-1.44: 96 h Lepomis macrochirus mg/L LC50 flow-through 10.6-11.8: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 12.69: 96 h Oncorhynchus mykiss mg/L LC50 static 6.8-8.53: 96 h Pimephales promelas mg/L LC50 flow-through 7.5: 96 h Lepomis macrochirus mg/L LC50 static	50: 24 h Daphnia magna mg/L EC50
Acetophenone	-	155: 96 h Pimephales promelas mg/L LC50 static 162: 96 h Pimephales promelas mg/L LC50 flow-through	-

12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential

No information available.

Chemical Name	log Pow
ETHYL ALCOHOL	-0.32
GLYCERINE	-1.76
ISOAMYL ALCOHOL	1.28
Hexyl alcohol	2.03
BENZALDEHYDE	1.48
Acetophenone	1.73

12.4. Mobility in soil

Mobility in soil
No information available.

12.5. Results of PBT and vPvB assessment

No information available.

12.6. Other adverse effects

No information available

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from residues / unused Dispose of in accordance with local regulations.

products

Contaminated packaging Empty remaining contents.

Section 14: TRANSPORT INFORMATION

IMDG / IMO

14.1 UN/ID No	1197
14.2 Proper shipping name	EXTRACTS, FLAVOURING, LIQUID
14.3 Hazard class	3
14.4 Packing Group	III

DOT/ADR/RID

14.1 UN/ID No	1197
14.2 Proper shipping name	EXTRACTS, FLAVOURING, LIQUID
14.3 Hazard class	3
14.4 Packing Group	III

ICAO/IATA

14.1 UN/ID No	1197
14.2 Proper shipping name	EXTRACTS, FLAVOURING, LIQUID
14.3 Hazard class	3
14.4 Packing Group	III
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

Section 15: REGULATORY INFORMATION

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

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Authorizations and/or restrictions on use:
This product does not contain substances subject to authorization (Regulation (EC) No. 1907/2006 (REACH), Annex XIV) This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Persistent Organic Pollutants
Not applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009 Not applicable

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	-
IECSC	Complies
KECL	-
PICCS	Complies
AICS	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

No information available

Section 16: OTHER INFORMATION

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of R-phrases referred to under sections 2 and 3
R10 - Flammable

Full text of H-Statements referred to under section 3
H401 - Toxic to aquatic life
H316 - Causes mild skin irritation
H302 - Harmful if swallowed
H313 - May be harmful in contact with skin
H227 - Combustible liquid
H226 - Flammable liquid and vapor
H332 - Harmful if inhaled
H402 - Harmful to aquatic life
H225 - Highly flammable liquid and vapor
H319 - Causes serious eye irritation
H301 - Toxic if swallowed

Legend
SVHC: Substances of Very High Concern for Authorization:

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA:	Time weighted average	STEL:	Short term exposure limit
Ceiling:	Maximum limit value:	*	Skin designation

Revision Date 17-May-2018

Reason for revision: Not applicable.

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.