

# SAFETY DATA SHEET

Prepared to US-OSHA Standards and Regulation (EC) No. 1907/2006

Kevin Murphy DRY.CONDITIONER

SDS Revision: 1.0

SDS Revision Date: 02Apr19

## SECTION 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1	<b>Product Identifier:</b>	Kevin Murphy DRY.CONDITIONER
	<b>Product Codes:</b>	8356-12075-2
1.2	<b>Relevant Identified Uses:</b>	Personal Care - Aerosol Dry Hair Conditioner
	<b>Uses Advised Against:</b>	None known
1.3	<b>Supplier of Safety Data Sheet:</b>	Kevin Murphy Business Services Pty Ltd 47 Discovery, Suite 230, Irvine, CA 92618, USA 949-407-5100 amizuno@kevinmurphy.com.au
		Kevin Murphy Europe A/S Refshalevej 163A, DK-1432 Copenhagen K +45 27 82 55 97 jsommer@kevinmurphy.com.au
1.4	<b>Emergency Telephone Number:</b>	<b>CHEMTREC: 1-800-424-9300 (North America) 1-703-527-3887 (International)</b>

This document is written for the packaged product (aerosol can containing propellant) with references to the dispensed or unpackaged product (liquid) to identify hazards as necessary.

## SECTION 2: Hazards Identification

The mixture has been assessed for its physical, health and environmental hazards, and the following classification applies.

2.1	<b>Classification of the Substance or Mixture:</b>	<b>Physical Hazards:</b> Flammable Aerosol - Category 1 <b>Health Hazards:</b> Eye Irritation - Category 2A <b>Environmental Hazards:</b> Not Classified	
2.2	<b>Labeling Elements:</b>	<b>Hazard Signal Word:</b> Danger <b>Hazard Statements:</b> H222: Extremely Flammable Aerosol. H229: Pressurized container: May burst if heated. H319: Causes Serious Eye Irritation <b>Precautionary Statements:</b> Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use. Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. Wash hands thoroughly after handling. Avoid direct eye contact. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. If medical advice is needed, have product container or label at hand. Keep out of reach of children. Read label before use. Dispose of waste and residue in accordance with local authority requirements.	<b>Hazard Pictograms:</b>  
2.3	<b>Other Hazards:</b>	No known other hazards which do not result in classification. Mixture does not meet the criteria for PBTs or vPvBs in accordance to Regulation (EC) No. 1907/2006, Annex XIII.	

## SECTION 3: Composition / Information on Ingredients

3.2 Mixtures:	CHEMICAL NAME	CAS No.	EC No.	Hazard Classification	Hazard Statements	% by Weight
	Ethanol	64-17-5	200-578-6	Flammable Liquid, Category 2 Eye Irritation, Category 2A	H225: Highly flammable liquid and vapour H319: Causes serious eye irritation	30 - 40
	Butane	106-97-8	203-448-7	Flammable Gas, Category 1	H220: Extremely flammable gas	30 - 40
	Isobutane	75-28-5	200-857-2	Flammable Gas, Category 1	H220: Extremely flammable gas	10 - 20
	Propane	74-98-6	200-827-9	Flammable Gas, Category 1	H220: Extremely flammable gas	1 - 10

There are no additional ingredients present which, within the current PBT knowledge of the supplier and in the concentrations applicable, are classified as physical, health or the environmental hazards, are PBTs or vPvBs, or have been assigned an occupational exposure limit within US OSHA Z-Tables or EU OEL Directives, and hence require reporting in this section.

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SECTION 4: First Aid Measures		
4.1	Description of First Aid Measures:	<p><u>Ingestion</u>: Not a likely route of exposure due to the form of the product.</p> <p><u>Eyes</u>: In case of eye contact, flush with copious amounts of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention in the event of an adverse reaction or if symptoms persist.</p> <p><u>Skin</u>: If signs of irritation to the skin develop, wash the affected area with plenty of water and soap. Seek medical attention in the event of an adverse reaction or if symptoms persist.</p> <p><u>Inhalation</u>: If respiratory distress or irritation occurs, remove victim to fresh air. Seek medical attention in the event of an adverse reaction or if symptoms persist.</p>
4.2	Most Important Symptoms and Effects, Both Acute and Delayed:	Spraying directly in the eyes may cause serious eye irritation. Symptoms may include stinging, tearing, and redness. Intentional misuse by deliberately concentrating and inhaling the contents may cause nausea, vomiting, and signs of central nervous system depression (headache, dizziness, and drowsiness), and rapid suffocation by displacing oxygen.
4.3	Indication of Immediate Medical Attention and Special Treatment Needed:	Provide general supportive measures and treat symptomatically. No known specific antidotes.
SECTION 5: Firefighting Measures		
5.1	Extinguishing Media:	<p><u>Suitable Extinguishing Media</u>: Water mist, dry chemical, alcohol resistant foam, or carbon dioxide.</p> <p><u>Unsuitable Extinguishing Media</u>: None known.</p>
5.2	Special Hazards Arising from the Substance or Mixture:	Danger! Extremely Flammable Aerosol: Vapours may burn or form explosive mixture with air. Pressurized container: May burst if heated. May produce oxides of carbon and/or nitrogen on combustion.
5.3	Advice for Firefighters:	Wear self-contained breathing apparatus and full personal protective gear. Use standard firefighting procedures.
SECTION 6: Accidental Release Measures		
6.1	Personal Precautions, Protective Equipment and Emergency Procedures:	Observe all personal protection equipment recommendations described in Section 8. Remove all sources of ignition and ensure adequate ventilation. Ventilate closed spaces before entering them. Keep unnecessary personnel away.
6.2	Environmental Precautions:	Dike or contain spill to prevent from entering drains. Avoid direct release to drains, surface and ground water.
6.3	Methods and Material for Containment and Cleaning Up:	Clean up spill with non-combustible absorbent material. Clean area to prevent a slip hazard. Use non-sparking tools and equipment. Take action to prevent static discharges.
6.4	Reference to Other Sections:	For personnel protection, see Section 8. For waste disposal, see Section 13.
SECTION 7: Handling and Storage		
7.1	Precautions for Safe Handling:	Pressurized container. Do not pierce or burn, even after use. Utilize safe handling and transportation techniques to avoid puncture of the container. Do not use if spray button is missing or defective. Do not spray on open flame or other ignition source. Ensure adequate ventilation in the workplace. Do not re-use containers. Avoid direct eye contact. Wear appropriate personal protective equipment (see Section 8). Do not smoke while using or until sprayed surface is thoroughly dry. Do not eat or drink while handling. Wash hands thoroughly after handling. Observe good hygiene practices.
7.2	Conditions for Safe Storage, Including Any Incompatibilities:	Pressurized container: May burst if heated. Store in a cool, dry, and well-ventilated area away from direct sunlight. Do not expose to temperatures exceeding 50°C/122°F. Do not store near heat, hot surfaces, sparks, open flames and other ignition sources. Store away from incompatible materials (see Section 10).
7.3	Specific End Use(s):	No further relevant information available.

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## SECTION 8: Exposure Controls / Personal Protection

Control parameters have been published by the referenced authority to establish exposure limits in the work environment. Employee work areas should be monitored to ensure that permissible limits are not exceeded during the work day.

8.1	Control Parameters:	Component Name	CAS No.	Occupational Exposure Limits (OEL)			
				Reference	Type	ppm	mg/m <sup>3</sup>
		Butane	106-97-8	Austria, OEL Regulation	MAK	800	1600
				Belgium, OEL Values	VME	800	1928
				Denmark, Limit Values Executive Order	TLV	500	1200
				Finland, OEL Decree	TWA	800	1900
				France, VLEP INRS	VME	800	1900
				Germany, DFG MAK	TWA	1000	2400
				Germany, AGS TRGS	AGW	1000	2400
				Hungary, OEL Decree	TWA	NE	2350
				Latvia, OEL Regulation	TWA	NE	300
				Poland, OEL Ordinance	TWA	NE	1900
				Spain, OEL INSHT	STEL	800	1935
				United Kingdom, WEL	TWA	600	1450
				United States, NIOSH REL	TWA	800	1900
				United States, ACGIH TLV	STEL	1000	NE
				Isobutane	75-28-5	Belgium, OEL Values	TWA
		Finland, OEL Decree	TWA			800	1900
		Germany, DFG MAK	TWA			1000	2400
		Germany, AGS TRGS	AGW			1000	2400
		United States, NIOSH REL	TWA			800	1900
		United States, ACGIH TLV	STEL			1000	NE
		Propane	74-98-6	Austria, OEL Regulation	MAK	1000	1800
				Belgium, OEL Values	VME	1000	NE
				Denmark, Limit Values Executive Order	TLV	1000	1800
				Finland, OEL Decree	TWA	800	1500
				Germany, DFG MAK	TWA	1000	1800
				Germany, AGS TRGS	AGW	1000	1800
				United States, OSHA PEL	TWA	1000	1800
				United States, NIOSH REL	TWA	1000	1800
				United States, ACGIH TLV	NA	Simple Asphyxiant	
				United States, IDHL	NA	2100	NE
				Ethanol	64-17-5	Austria, OEL Regulation	MAK
		Belgium, OEL Values	TWA			1000	1907
		Bulgaria, OEL Regulation No 13	TWA			NE	1000
		Croatia, ELV Narodne Novine	MAC			1000	1900
		Czech Republic, OEL Decree 361	TWA			NE	1000
		Denmark, Limit Values Executive Order	TLV			1000	1900
		Estonia, OEL Regulation	TWA			500	1000
		Finland, OEL Decree	TWA			1000	1900
		France, VLEP INRS	VME			1000	1900
		Germany, DFG MAK	TWA			500	960
		Germany, AGS TRGS	AGW			500	960
		Greece, OEL Decree	TWA			1000	1900
		Hungary, OEL Decree	TWA			NE	1900
		Ireland, OEL Regulation	STEL			1000	NE
		Latvia, OEL Regulation	TWA			NE	1000
		Lithuania, IPRV	TWA			500	1000
		Netherlands, OEL SER	TWA			NE	260
		Poland, OEL Ordinance	TWA			NE	1900
Portugal, OEL Standard NP 1796	TWA	1000	NE				
Romania, OEL Law	TWA	1000	1900				
Slovakia, OEL Regulation	TWA	500	960				
Slovenia, OEL Regulation	TWA	1000	1900				

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				Spain, OEL INSHT	STEL	1000	1910
				Sweden, OELV AFS	TWA	500	1000
				United Kingdom, WEL	TWA	1000	1920
				United States, OSHA PEL	TWA	1000	1900
				United States, NIOSH REL	TWA	1000	1900
				United States, ACGIH TLV	STEL	1000	NE
				United States, IDHL	NA	3300	NE
	<b>Recommended Monitoring Procedures:</b>	Workplace atmospheric monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference monitoring standards, such as US NIOSH and OSHA Measurement Methods, European Standards EN 689 and EN 482. Reference national guidance documents for methods for the determination of hazardous substances.					
	<b>Biological Limit Values:</b>	This product does not contain substances with biological exposure limit values.					
	<b>Derived No Effect Level (DNEL):</b>	No information available					
	<b>Predicted No Effect Concentrations (PNEC):</b>	No information available					
<b>8.2</b>	<b>Exposure Controls:</b>						
	<b>Appropriate Engineering Controls:</b>	Provide adequate ventilation in the workplace to maintain airborne levels below recommended exposure limits.					
	<b>Eye/Face Protection:</b>	Avoid eye contact. Wear protective eyewear (e.g., safety glasses with side-shield) if eye contact hazards exist in the workplace.					
	<b>Skin and Hand Protection:</b>	No special skin protection is required during consumer product use. If anticipated that prolonged or repeated skin contact will occur in the workplace, wear impermeable gloves and suitable protective clothing.					
	<b>Respiratory Protection:</b>	If airborne exposure limits are exceeded, wear suitable respirator that meets current occupational health and safety standards.					
	<b>Thermal Hazards:</b>	Refer to Section 5 for fire personal protective equipment.					
	<b>Hygiene Measures:</b>	Do not eat, drink or smoke during product use or handling. Wash hands after handling. Observe good personal hygiene measures. Routinely wash work clothing and protective equipment.					
	<b>Environmental Exposure Controls:</b>	Environmental manager must be informed of all major releases.					
<b>SECTION 9: Physical and Chemical Properties</b>							
<b>9.1</b>	<b>Information on Basic Physical and Chemical Properties:</b>						
	<b>Appearance:</b>	Hazy liquid; aerosol spray					
	<b>Odor:</b>	Fragrance					
	<b>Odor Threshold:</b>	No data available on this product					
	<b>pH:</b>	No data available on this product					
	<b>Melting Point:</b>	No data available on this product					
	<b>Freezing Point:</b>	No data available on this product					
	<b>Initial Boiling Point/Boiling Range:</b>	Butane: -0.5°C (31°F); Isobutane: -12°C (11°F); Propane: -42°C (-44°F); Ethanol: 78.2°C (173°F)					
	<b>Flashpoint:</b>	Butane: -60°C (-76°F) closed cup; Isobutane: -83°C (-117°F) closed cup Propane: -104°C (-156°F) closed cup; Ethanol: 13°C (55°F): closed cup					
	<b>Evaporation Rate:</b>	No data available on this product					
	<b>Flammability (solid, gas):</b>	No data available on this product					
	<b>Upper/Lower Flammability or Explosive Limits:</b>	UEL: 8.5% (Butane), 8.4% (Isobutane), 9.5% (Propane), 19.0% (Ethanol) LEL: 1.9% (Butane), 1.8% (Isobutane), 2.1% (Propane), 3.3% (Ethanol)					
	<b>Vapor Pressure:</b>	No data available on this product					
	<b>Vapor Density:</b>	No data available on this product					
	<b>Relative Density (water=1.0):</b>	No data available on this product					
	<b>Solubility (in water):</b>	No data available on this product					

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	<b>Partition Coefficient (n-octanol/water):</b>	Butane: 2.89 Log $K_{ow}$ Isobutane: 2.76 Log $K_{ow}$ Propane: 2.36 Log $K_{ow}$ Ethanol: -0.31 Log $K_{ow}$
	<b>Autoignition Temperature:</b>	No data available on this product
	<b>Decomposition Temperature:</b>	No data available on this product
	<b>Viscosity:</b>	No data available on this product
	<b>Explosive Properties:</b>	No data available on this product
	<b>Oxidizing Properties:</b>	No data available on this product
<b>9.2</b>	<b>Other Information:</b>	No relevant additional information available on this product.
<b>SECTION 10: Stability and Reactivity</b>		
<b>10.1</b>	<b>Reactivity:</b>	The product is not reactive under normal conditions of use, storage and transport.
<b>10.2</b>	<b>Chemical Stability:</b>	The product is stable under normal handling and storage conditions.
<b>10.3</b>	<b>Possibility of Hazardous Reactions:</b>	No hazardous reactions known under conditions of normal use. Hazardous polymerization is not expected.
<b>10.4</b>	<b>Conditions to Avoid:</b>	Direct sunlight, extremely high or low temperatures, sparks, open flame, and other ignition sources.
<b>10.5</b>	<b>Incompatible Materials:</b>	Strong acids, bases, and oxidizing agents.
<b>10.6</b>	<b>Hazardous Decomposition Products:</b>	No hazardous decomposition products are known. May produce oxides of carbon and/or nitrogen on combustion.
<b>SECTION 11: Toxicological Information</b>		
<b>11.1</b>	<b>Information on Toxicological Effects:</b>	No data available on the mixture. Health effects of the mixture are derived from component literature review, concentrations present, and in accordance with US OSHA Regulation 29 CFR 1910.1200 and EU Regulation (EC) No. 1272/2008 [CLP/GHS]. If available, relevant toxicological properties of the components that contribute to classification of the mixture in Section 3 are provided. Evaluations for the mixture may be based on additional information not shown. The product uses ingredients presented herein from suppliers that have not tested the ingredients on animals for cosmetic purposes since the 11-March-2009 time table set forth by the EU Commission in accordance with EU Cosmetic Directive (EC) No. 1223/2009.
	<b>Potential Acute Health Effects and Symptoms:</b>	<b>Eye Exposure:</b> Direct contact with eyes may cause serious eye irritation. Symptoms may include stinging, tearing, and redness.
		<b>Skin Exposure:</b> No adverse effects expected from normal use. Prolonged or repeated skin exposure may cause defatting, drying and cracking of the skin.
		<b>Ingestion:</b> Not a likely route of exposure due to the form of the product. May cause gastrointestinal discomfort/irritation if swallowed.
		<b>Inhalation:</b> No adverse effects expected from normal use. Intentional misuse by deliberately concentrating and inhaling the contents may cause nausea, vomiting, and signs of central nervous system depression (headache, dizziness, and drowsiness), and rapid suffocation by displacing oxygen.
	<b>Potential Chronic Health Effects:</b>	None known
	<b>Acute Toxicity:</b>	<b>Product Summary/Conclusion:</b> Based on available data, classification criteria are not met.
		<b>Ethanol:</b> CAS 64-17-5 Oral LD50: 7060 mg/kg (Rat) Dermal LD50: 20,000 mg/kg (Rabbit) Inhalation LC50: > 60,000 ppm (114 mg/L), 1 hour (Mouse)
		<b>Butane:</b> CAS 106-97-8 Oral Toxicity: Study technically not feasible Dermal Toxicity: Study technically not feasible Inhalation LC50: 680,000 mg/m <sup>3</sup> , 2 hour (Mouse)
		<b>Isobutane:</b> CAS 75-28-5 Oral Toxicity: Study technically not feasible Dermal Toxicity: Study technically not feasible Inhalation LC50: 658 mg/L, 4 hours (Rat)

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	<p><b>Propane:</b> CAS 74-98-6 Oral Toxicity: Study technically not feasible Dermal Toxicity: Study technically not feasible Inhalation LC50: 658 mg/L, 4 hours (Rat)</p>
<b>Skin Corrosion/Irritation:</b>	<p><b>Product Summary/Conclusion:</b> Based on available data, classification criteria are not met.</p>
	<p><b>Ethanol:</b> CAS 64-17-5 Acute Dermal Irritation/Corrosion, OECD 404, Rabbit: Not irritating to skin Modified Draize 1944 for Human Repeat Occluded (95% active): Slightly irritating under extreme repeat dose situations</p>
	<p><b>Butane:</b> CAS 106-97-8 Study technically not feasible</p>
	<p><b>Isobutane:</b> CAS 75-28-5 Study technically not feasible</p>
	<p><b>Propane:</b> CAS 74-98-6 Study technically not feasible</p>
<b>Serious Eye Damage/Irritation:</b>	<p><b>Product Summary/Conclusion:</b> Causes serious eye irritation.</p>
	<p><b>Ethanol:</b> CAS 64-17-5 Acute Eye Irritation/Corrosion, OECD 405, Rabbit (100% active): eye irritant (Category 2A)</p>
	<p><b>Butane:</b> CAS 106-97-8 Study technically not feasible</p>
	<p><b>Isobutane:</b> CAS 75-28-5 Study technically not feasible</p>
	<p><b>Propane:</b> CAS 74-98-6 Study technically not feasible</p>
<b>Respiratory or Skin Sensitization:</b>	<p><b>Product Summary/Conclusion:</b> Based on available data, classification criteria are not met.</p>
	<p><b>Ethanol:</b> CAS 64-17-5 Respiratory Sensitization: No reports of human respiratory sensitization Skin Sensitization: No skin sensitization evident in animal studies at 75% concentration.</p>
	<p><b>Butane:</b> CAS 106-97-8 Respiratory/Skin Sensitization: No indication of respiratory or skin sensitization from petroleum gases.</p>
	<p><b>Isobutane:</b> CAS 75-28-5 Respiratory/Skin Sensitization: No indication of respiratory or skin sensitization from petroleum gases.</p>
	<p><b>Propane:</b> CAS 74-98-6 Respiratory/Skin Sensitization: No indication of respiratory or skin sensitization from petroleum gases.</p>
<b>Germ Cell Mutagenicity:</b>	<p><b>Product Summary/Conclusion:</b> Based on available data, classification criteria are not met. No components at levels greater than or equal to 0.1% are listed as a mutagen in EU Regulation (EC) No. 1272/2008 [CLP].</p>
	<p><b>Ethanol:</b> CAS 64-17-5 <i>In-vitro:</i> Negative for bacterial reverse mutation test (OECD 471) in Salmonella typhimurium up to maximum plate concentration of 10 mg/plate, with and without metabolic activation</p>
	<p><b>Butane:</b> CAS 106-97-8 <i>In-vitro:</i> Negative for bacterial reverse mutation test (OECD 471) in Salmonella strains.</p>
<b>Carcinogenicity:</b>	<p>No components at levels greater than or equal to 0.1% are listed as a human carcinogen in EU Regulation (EC) No. 1272/2008 [CLP], IARC, US-OSHA, or NTP.</p>
<b>Reproductive Toxicity:</b>	<p><b>Product Summary/Conclusion:</b> Based on available data, classification criteria are not met. No components at levels greater than or equal to 0.1% are listed as a reproductive toxin in EU Regulation (EC) No. 1272/2008 [CLP].</p>
	<p><b>Ethanol:</b> CAS 64-17-5 Two-Generation Reproduction Toxicity, OECD 416, Mouse, Oral: NOAEL 15% (20.7g/kg/day) (highest concentration tested) Prenatal Developmental Toxicity, OECD 414, Rat, Inhalation: NOAEL (maternal toxicity) 16,000 ppm, NOAEL (teratogenicity) ≥ 20,000 ppm (highest concentration tested)</p>
<b>STOT-Single Exposure:</b>	<p>Based on available data, classification criteria are not met.</p>
<b>STOT-Repeated Exposure:</b>	<p><b>Product Summary/Conclusion:</b> Based on available data, classification criteria are not met.</p>
	<p><b>Ethanol:</b> CAS 64-17-5 90-Day Oral Toxicity, Mouse: NOAEL &gt; 9400 mg/kg (total dose), LOAEL 9700 mg/kg Repeated Dose Inhalation Toxicity, Rat, 4 weeks (6 hours/day, 5 days/week): NOAEC ≥ 6130 ppm</p>
	<p><b>Butane:</b> CAS 106-97-8 Repeated Dose Inhalation Toxicity, Rat, 13 weeks (6 hours/day, 5 days/week): NOAEC &gt; 10,000 ppm</p>

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		<b>Isobutane:</b> CAS 75-28-5 Sub-Chronic Inhalation Toxicity, Rat, 13 weeks (Liquified Petroleum Gas): NOAEC $\geq$ 10,000 ppm
		<b>Propane:</b> CAS 74-98-6 Sub-Chronic Inhalation Toxicity, Rat, 13 weeks (Liquified Petroleum gas): NOAEC $\geq$ 10,000 ppm
	<b>Aspiration Hazard:</b>	Not classified due to form of the product.
	<b>Other Information:</b>	No other relevant information available.

## SECTION 12: Ecological Information

12.1	<b>Toxicity:</b>	<p><b>Product Summary/Conclusion:</b> Based on available data, classification criteria are not met. No data available on the mixture. Environmental toxicity of the mixture derived from ingredient information, concentrations present and in accordance with EU Regulation (EC) No. 1272/2008 [CLP/GHS].</p> <p><b>Ethanol:</b> CAS 64-17-5 Aquatic Plants EC50: 275 mg/L, 72 hours (Chlorella vulgaris: fresh water algae) Crustacea LC50: 12,340 mg/L, 48 hours (Daphnia magna); EC50: 23,874 mg/L, 24 hours (Artemia salina) Fish LC50: &gt; 10,000 mg/L, 96 hours (rainbow trout); &gt; 13,400 mg/L, 96 hours (fathead minnow)</p> <p><b>Butane:</b> CAS 106-97-8 (Toxicity not likely due to volatility of petroleum gases.) Aquatic Plants EC50: 7.71 - 16.5 mg/L, 96 hours, QSAR Calculation (Petroleum Gases) Crustacea EC50: 14.22 - 69.43 mg/L, 48 hours, QSAR Calculation (Petroleum Gases) Fish LC50: 24.11 - 147.54 mg/L, 96 hours, QSAR Calculation (Petroleum Gases)</p> <p><b>Isobutane:</b> CAS 75-28-5 (Toxicity not likely due to volatility of petroleum gases.) Aquatic Plants EC50: 7.71 - 16.5 mg/L, 96 hours, QSAR Calculation (Petroleum Gases) Crustacea EC50: 14.22 - 69.43 mg/L, 48 hours, QSAR Calculation (Petroleum Gases) Fish LC50: 24.11 - 147.54 mg/L, 96 hours, QSAR Calculation (Petroleum Gases)</p> <p><b>Propane:</b> CAS 74-98-6 (Toxicity not likely due to volatility of petroleum gases.) Aquatic Plants EC50: 7.71 - 16.5 mg/L, 96 hours, QSAR Calculation (Petroleum Gases) Crustacea EC50: 14.22 - 69.43 mg/L, 48 hours, QSAR Calculation (Petroleum Gases) Fish LC50: 24.11 - 147.54 mg/L, 96 hours, QSAR Calculation (Petroleum Gases)</p>
12.2	<b>Persistence and Degradability:</b>	<p><b>Ethanol:</b> CAS 64-17-5 Readily biodegradable</p> <p><b>Butane:</b> CAS 106-97-8 Readily biodegradable</p> <p><b>Isobutane:</b> CAS 75-28-5 Readily biodegradable</p> <p><b>Propane:</b> CAS 74-98-6 Readily biodegradable</p>
12.3	<b>Bioaccumulative Potential:</b>	<p><b>Partition Coefficient:</b> Ethanol (CAS 64-17-5): -0.31 (Log <math>K_{ow}</math>) n-octanol/water Butane (CAS 106-97-8): 2.89 (Log <math>K_{ow}</math>) Isobutane (CAS 75-28-5): 2.76 (log <math>K_{ow}</math>) Propane (CAS 74-98-6): 2.36 (log <math>K_{ow}</math>)</p> <p><b>Bioconcentration Factor (BCF):</b> Not available</p>
12.4	<b>Mobility in Soil:</b>	No data available
12.5	<b>Results of PBT and vPvB Assessment:</b>	Not available
12.6	<b>Other Adverse Effects:</b>	No other known adverse environmental effects or critical hazards.

## SECTION 13: Disposal Considerations

13.1	<b>Waste Treatment Methods:</b>	
	<b>Waste Disposal:</b>	Dispose of waste material and containers in accordance with appropriate local, state, regional, and national regulations. Do not dispose through sewage. Empty containers should be taken to an approved waste handling site for recycling or disposal. U.S. EPA Waste Number: RCRA D001/Unlisted Ignitable Hazardous Waste.
	<b>Special Precautions:</b>	Observe all precautions for ignitable waste and pressurized container.

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SECTION 14: Transport Information									
Shipment in Consumer Packaging - Limited Quantity	US DOT (Ground)	IMDG (Sea)		IATA (Air)		ADR (Road)	RID (Rail)	ADN (Waterways)	
		North America - Domestic	Export	North America - Domestic	Export				
14.1	UN Number:	Not applicable	UN1950	UN1950	ID8000	UN1950	UN1950	UN1950	UN1950
14.2	UN Proper Shipping Name:	Not applicable	Aerosols	Aerosols	Consumer Commodity	Aerosols, flammable	Aerosols, flammable	Aerosols, flammable	Aerosols, flammable
14.3	Transport Hazard Classes:	Not applicable	2.1	2.1	9	2.1	2.1	2.1	2.1
									
14.4	Packing Group:	None	None	None	None	None	None	None	None
14.5	Environmental Hazards:	None	None	None	None	None	None	None	None
14.6	Special Precautions for User:	Transport within user's premises: Transport in closed containers that are upright and secure. Read SDS before handling.							
14.7	Transport in Bulk According to Annex II of Marpol and the IBC Code:	Not applicable							

SECTION 15: Regulatory Information	
15.1	<p><b>Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture:</b></p> <p><b>EU Regulation (EC) No. 1907/2006 REACH Article 59(10) and Annexes XIV and XVII, as amended :</b> No components in this product are listed.</p> <p><b>EU Directive 2012/18/EU on major accident hazards involving dangerous substances:</b> Isobutane (CAS 75-28-5), Butane (CAS 106-97-8), Propane (CAS 74-98-6), Ethanol (CAS 64-17-5)</p> <p><b>EU Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended:</b> No components in this product are listed.</p> <p><b>EU Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I, as amended:</b> No components in this product are listed.</p> <p><b>EU Regulation (EC) No. 649/2012 concerning export/import of dangerous chemicals, Annex I (parts 1 - 3) &amp; Annex V, as amended:</b> No components in this product are listed.</p> <p><b>EU Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry:</b> No components in this product are listed.</p> <p><b>National Regulations of EU Member States:</b> Follow national regulations for work with chemical agents.</p> <p><b>US SARA 302 TPQ:</b> No components in this product are listed.</p> <p><b>US SARA 304 RQ:</b> No components in this product are listed.</p> <p><b>US SARA 311/312:</b> Not applicable - product is exempt.</p> <p><b>US SARA 313:</b> No components in this product are listed.</p> <p><b>US CERCLA RQ:</b> RCRA D001/Unlisted Ignitable Hazardous Waste: Butane, Isobutane, Propane, Ethanol - 100 lbs</p> <p><b>US Clean Air Act (CAA) Section 112(r) TQ:</b> Butane - 10,000 lbs; Isobutane - 10,000 lbs; Propane - 10,000 lbs</p> <p><b>US Clean Water Act (CWA):</b> No components in this product are listed.</p> <p><b>US State Regulations:</b> Follow state regulations for work with chemical agents.</p>
15.2	<p><b>Chemical Safety Assessment:</b> No Chemical Safety Assessment has been carried out.</p>

SECTION 16: Other Information	
<b>Legend to Abbreviations:</b>	<p>ACGIH: American Conference of Governmental Industrial Hygienists</p> <p>ADN: European Agreement Concerning International Carriage of Dangerous Goods by Inland Waterways</p> <p>ADR: European Agreement Concerning International Carriage of Dangerous Goods by Road</p> <p>AFS: Work Environment Provisions</p> <p>AGS: Committee on Hazardous Substances</p> <p>AGW: Occupational Limit Values</p>

# SAFETY DATA SHEET

Prepared to US-OSHA Standards and Regulation (EC) No. 1907/2006

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CAS: Chemical Abstracts Service
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act
CFR: Code of Federal Regulations
CLP: Classification, Labelling and Packaging of Substances and Mixtures
DFG: Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (known as the MAK Commission)
DOT: (US) Department of Transportation
EC: European Commission
EC50: Effective Concentration, 50%
ELV: Exposure Limit Values
EPA: (US) Environmental Protection Agency
EU: European Union
GHS: Globally Harmonized System of Classification and Labelling Chemicals
IARC: International Agency for the Research of Cancer
IATA: International Air Transport Association
IBC: Intermediate Bulk Container
IDHL: Immediately Dangerous to Life or Health Concentrations
IMDG: International Maritime Dangerous Goods
INRS: The French National Research and Safety Institute for the Prevention of Occupational Accidents and Diseases
INSHT: National Institute for Occupational Safety and Health
IPRV: Long Term Exposure Limit Value
LC50: Lethal Concentration, 50%
LD50: Lethal Dose, 50%
LOAEL: Lowest Observed Adverse Effect Level
Log $K_{ow}$ : Logarithm of the n-octanol/water partition coefficient
MAC: Maximum Workplace Concentrations
MAK: Maximum Workplace Concentrations
NA: Not Applicable
NE: Not Established
NIOSH: National Institute for Occupational Safety and Health
NOAEC: No Observed Adverse Effect Concentration
NOAEL: No Observed Adverse Effect Level
NTP: National Toxicology Program
OECD: Organisation for Economic Co-operation and Development
OEL: Occupational Exposure Limit
OELV: Occupational Exposure Limit Value
PBT: Persistent, Bioaccumulative, and Toxic
vPvB: very Persistent and very Bioaccumulative
PEL: Permissible Exposure Limit
QSAR: Quantitative Structure-Active Relationship
RCRA: Resource Conservation and Recovery Act
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
REL: Recommended Exposure Limit
RID: Regulations Concerning International Carriage of Dangerous Goods by Rail
RQ: Reportable Quantity
SARA: Superfund Amendments and Reauthorization Act
SER: Social and Economic Council of the Netherlands
STEL: Short Term Exposure Limit
STOT: Specific Target Organ Toxicity
TLV: Threshold Limit Value
TPQ: Threshold Planning Quantity
TQ: Threshold Quantity
TRGS: Technical Rules for Hazardous Substances
TWA: Time Weighted Average
UN: United Nations
US: United States
US-OSHA: United States Occupational Safety & Health Administration

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	VLEP: Occupational Exposure Limit Values
	VME: Limit Value of Average Exposure
	WEL: Workplace Exposure Limits
<b>Evaluation Methods Used for Classification of the Mixture:</b> Calculation method	
<b>Training Advice:</b>	It is recommended that each customer or recipient of this Safety Data Sheet (SDS) study it carefully and consult resources, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product.
<b>Disclaimer:</b>	This Safety Data Sheet is intended to provide a brief summary of our knowledge and guidance regarding the use of this product. The information set forth herein has been compiled from sources considered to be reliable and is believed to be accurate as of the date of publication. This information is offered in good faith by Kevin Murphy Business Services Pty Ltd and the accuracy, suitability or completeness is not guaranteed, and no warranties of any type, either expressed or implied, are provided. If this product is combined with other materials, all component properties must be considered. The user assumes all liability for any damage or from any hazards inherent in the nature of the product.
<b>Last Revision Date:</b>	Not applicable - first issue
<b>Revision Information:</b>	Not applicable