VORTEX MIX PRO (High Temperature Gas Mix)

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND COMPANY

Product name Vortex Mix Pro (High Temperature Gas Mix)
Product No. VG1 - 450g
Address/Phone No. Nina Works, Gelderd Road, Leeds LS12 6NA
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2. HAZARDS IDENTIFICATION

Classification (1999/45) F+,R12.
Classification (EC 1272/2008) Flam. Gas1-H220 Not classified. Not classified.
Label in accordance with (EC) No. 1272/2008

Signal Word Danger
Hazard Statements H220 Extremely flammable gas.
Precautionary Statements P210 Keep away from heat/sparks/open flames/hot surfaces - No Smoking.
P403 Store in a well ventilated place.
Supplementary Precautionary Statements P377 Leaking gas fire: Do not extinguish unless leak can be stopped safely.
P381 Eliminate all ignition sources if safe to do so.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterisation
Description: The component of this product is in the form of elements listed below with addition

Components No.	CAS No.	Approx (%) by Wt. or Vol.	GHS Classification
Propylene	115-07-1	25-30%	Flam. Gas 1; H220
Isobutane	75-28-5	20-35%	Flam. Gas 1; H220
Propane	74-98-6	45-55%	Flam. Gas 1; H220

4. FIRST AID MEASURES

Persons using these products should consult a physician or other medical professional if an accident involving these products occurs. Specific first-aid measures are as follows:

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Contact lenses should be removed if safe to do so. Obtain medical attention without delay, preferably from an ophthalmologist.
Skin contact: Immediately warm frostbite area with warm water (not to exceed 40.5°C, 105°F). Remove contaminated clothing and shoes. Wash clothing before re-use. Thoroughly clean shoes before re-use. Seek medical attention.
Inhalation: Remove subject to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Seek medical attention.

5. FIRE-FIGHTING MEASURES

Extinguishing Media Carbon Dioxide, water, appropriate foam or dry material.
Special Fire Fighting Procedures Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full facepiece operated in positive pressure mode. Do not extinguish due to possible hazard of explosive reignition. Use water to cool containers and structures and to protect personnel attempting to shut-off flow. Attempt shut-off only if hazard is not too great. Extinguish surrounding and/or residual fires with appropriate fire fighting foam, carbon dioxide or dry chemical media. If involved in fire, shut off flow immediately if it can be done without risk. Apply water from a safe distance to cool container and protect surrounding area.
Unusual Fire and Explosion Hazards This product is combustible. The product creates carbon oxides (CO, CO2) under fire conditions.
Explosion Sensitivity to Mechanical Impact Not available.
Explosion Sensitivity to Static Discharge Not available.

6. ACCIDENTAL RELEASE MEASURES

Release Response Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (Section 8). Shut off gas supply if this can be done safely. Isolate area until gas has dispersed.

7. HANDLING AND STORAGE

Usage Precautions Keep container closed. Use only with adequate ventilation. Keep away from heat, sparks and flame. To avoid fire, minimize ignition sources. Use explosion-proof electrical (ventilation, lighting and material handling) equipment. Do not puncture or incinerate container. High pressure gas. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide or drop. Use a suitable hand truck for cylinder movement.
Fire and Explosion Protection Do not handle, store or open near an open flame, sources of heat or ignition.
Storage Precautions Keep container in a cool, well ventilated area.
Storage in One Common Storage Facility Keep container tightly sealed.
Storage Condition Cylinders should be stored upright, with valve protection cap in place and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52°C (125°F).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Workplace Exposure Limit

	Propylene	Isobutane	Propane
OSHA PEL (mg/m3)	N/A	N/A	TWA: 1800 mg/m 8 hour(s)Form: All forms TWA: 1000 mg/m 8 hour(s)Form: All forms
ACHIH TLV (mg/m3)	TWA: 500 ppm 8 hour(s)Form: All forms	TWA: 1000 ppm 8 hour(s)Form: All forms	TWA: 1000 ppm 8 hour(s)Form: All forms

Engineering Controls Use only with adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. The engineering controls also need to keep gas, vapor or dust concentrations below any explosive limits. Use explosion-proof ventilation equipment.
Personal Protective Equipment Protection of Hands Chemical-resistant, impervious gloves or gauntlets complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Protection of Eyes Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Monogoggles.
Protection of Respiratory Tract Use a properly fitted, air purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Protection of Body Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Neoprene and Nitrile (NBR).
General Protective/ Hygienic Measures Not available.
Material of Gloves Not available.

9. PHYSICAL AND CHEMICAL PROPERTIES

General Information	Form	Gas.
	Colour	Not available.
	Odour	Not available.
Change in Condition	Melting Point/Range	-102.77°C (-153°F) based on data for Propane. Weighted average -152.55°C (-242.6°F)
	Boiling Point/Range	(760 mmHg) -41°C-35°C
	Flash Point	-108.15°C (-162.7°F)
	Self Igniting	Not available
	Danger of Explosion	Not available
	Vapour Pressure	Not available
	Partition Co-Efficient	Not available
	Density	Not available
	Relative Density	Not available
	Vapour Density	The highest known value is 2 (Air = 1) (Isobutane) Weighted average: 1.47 (Air = 1)
	Evaporation Rate	Not available
	Solubility in/Miscibility with Water	Not available
	PH Value	Not available
	Viscosity	Not available
	Dynamic	Not available

10. STABILITY AND REACTIVITY

Chemical Stability This product is stable. Conditions to avoid: Stable as mixed; however, contains unstable materials (methylacetylene and propadiene). Weathering off (evaporation of light components) may allow concentration of the methylacetylene and propadiene to reach concentrations which would make mixture unstable on heating. Avoid heating of mixture or venting of lights that could cause lighter materials to weather off (evaporate).

Dangerous Decomposition Products None under normal use.

Hazardous Polymerizations May occur. Conditions to avoid: Elevated temperatures and pressures. Polymerization catalysts, such as metal alkyls, can cause uncontrolled polymerization. Contamination with oxygen can cause propadiene to form hazardous peroxides.
Inhibitors/Stabilizers - An inhibitor is added to the MAPD mixture to prevent potential unstable peroxide formation. Butanes (iso and/or normal) are also added to the MAPD mixture to prevent potential concentration of the methylacetylene and propadiene from reaching concentration levels that would render the mixture unstable in case of weathering off (evaporation of light components).

Conditions to Avoid Avoid heating of mixture or venting of lights that could cause lighter materials to weather off (evaporate).

Materials to Avoid Avoid contact with oxidizing agents and acetylide-forming metals (copper, silver and mercury).

11. TOXICOLOGICAL INFORMATION

No experimental data available on the compound.In consideration of substance contained in the product and making reference to the conventional method stated for by the law decree 14/03/2003, n.65 (Directive 1999/45/EEC), the product should be characterized as followed:

Routes of Exposure Inhalation, contact with the skin and eyes. Accidental ingestion of the product is unlikely.

Ingestion The product in its liquid state causes the immediate freezing of the part with which it comes in contact and may seriously affect the mucous membranes and tissue of mouth, oesophagus and stomach. In the event of ingestion, carry injured person to First Aid immediately. The gaseous product practically has no harmful effect.

Inhalation Inhalation of mists containing the product may cause irritation to mucous membranes and apnea. Gas absorption causes narcosis (depression of central nervous system) and may cause dizziness or suffocation without any forewarning symptoms. Exposure to higher levels (1%-10% in air) may result in pulmonary and heart involvement (arrhythmia, heart attack). Gas concentration that is immediately hazardous for health (IDLH) is 2100 ppm for propane. It is recommended that you avoid exposure to gas mixing at concentration higher than the recommended limit value of 1000 ppm. Refer to point 8.

Eye and Skin Contact Exposure to gaseous product is not so hazardous as exposure to the liquid product because in the latter case there is a risk of possible freezing and consequent injury to skin and eye tissue.

Other Data As regards chronic toxicity, no carcinogenic and mutagen effects have been found, neither for reproduction (teratogenesis, embryo toxicity) nor for the possibility of respiratory and skin sensitisation. No drawbacks are reported to have occurred after proper use of the product. Refer to the specific technical instructions.

12. ECOLOGICAL INFORMATION

No experimental data available on the compound.In consideration of substance contained in the product and making reference to the conventional method stated for by the law decree 14/03/2003, n.65 (Directive 1999/45/EEC), the product should be characterised as followed:

Ecotoxicity This product does not contain any substance classified as hazardous for the environment; it is however good practice to use it according to good operational codes and avoiding product dispersion in the environment.

Soil The product will be absorbed in the upper soil layers and biodegraded; however, because of the product gaseous state at ambient temperature and pressure, product volatilisation to air is expected to be the dominant process.

Water Due to the gaseous state of the product under normal weather conditions and because of the chemical inertia of hydrocarbon components, the most important degradation process capable of generating hazardous substances for health (ozone and organic nitrates) seems to be the photochemical reaction with oxygen and nitric oxide.

Mobility The product spreads in soil layers, water and air.

Persistence and Degradability The product does not seem to adversely affect the activated sludge of biologic depuration plants. The organic substance contained in the product are biodegradable.

Bioaccumulation Potential None expected, in consideration of the low values of bioaccumulation potential (LOG BCF)

Other Adverse Effects Releasing to air of hydrocarbons and organic solvents contributes to the photochemical creation of zone, a harmful gas for atmosphere.

13. DISPOSAL CONSIDERATIONS

Classification Contribution of this product to waste which contains the product is very significant and dangerous because of product flammability and possibility of explosive atmosphere formation.

Product Disposal The product and contaminated packaging should be handed over to qualified and authorised waste contractors for disposal as hazardous waster. Do not compact product to be disposed of nor damage product containers. For product to be disposed of, observe same safety regulations as for new product and, in a special way, do not pierce nor incinerate containers.

14. TRANSPORT INFORMATION

Conveyance by Road & Railways	**Class ADR/RID**	2
	Classification Code	5F
	UN Number	2037
	Proper Shipping Name	Gas cartridge (flammable) without release device, not refillable and not exceeding 1L capacity.
	Hazard Label	2.1
	Packing	Combination packages (Fibreboard) - Limited Quantities.
	Description of Goods	Mixed gas for welding applications.
Conveyance by Sea	**Class IMDG**	2.1
	UN Number	2037
	Proper Shipping Name	Gas cartridge (flammable) without release device, not refillable and not exceeding 1L capacity.
	Label	2.1
	Packing	Combination packages (Fibreboard) - Limited Quantities.
	EMS Number	Not regulated.
	Sea Pollutant	No.
	Description of Goods	Mixed gas for welding applications.
Conveyance by Air - ICAO/IATA	**Class ICAO/IATA**	2.1
	UN Number	2037
	Proper Shipping Name	Gas cartridge (flammable) without release device, not refillable and not exceeding 1L capacity.
	Label	2.1
	Packing	Combination packages (Fibreboard) - Limited Quantities.
	Description of Goods	Mixed gas for welding applications.

15. REGULATORY INFORMATION

Other National Regulations	**SARA**	Not available.
	ICAO/IATA	UN2037.
	TSCA	Not available.
	DOT	Not available.

16. OTHER INFORMATION

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.