



**MATERIAL SAFETY
DATA SHEET (MSDS)**

Range of Products:

PFX-JETSTREAM

CO2 Jet Simulation Smoke Fluid

1 – IDENTIFICATION OF PRODUCT & COMPANY

1.1 Identification of product:

Product Name: PULSE PFX-JETSTREAM

Synonyms: CO2 Jet Simulation Smoke Fluid

Use: Fluid used for creating smoke effects which are used in applications such as stage shows or professional entertainment

1.2 Identification of company:

PULSE Premier Farnell PLC
150 Armley Road
LEEDS
LS12 2QQ

Telephone: +44 (0)870 129 8608

Email: info@pulse-audio.co.uk

WEB: www.pulse-audio.co.uk

In case of emergency: +44 (0)8447 88 00 88

2 – HAZARD IDENTIFICATIONS

- 2.1 Classification of the substance or mixture
- Classification (REGULATION (EC) No 1272/2008) [CLP/GHS]: Not Classified
- Additional information: For full text of Hazard- and EU Hazard-statements: see section 16
- 2.2 Label elements
- Symbols: None
- Signal Word: None
- Hazard statements
None
- Precautionary statements
None
- Supplemental Hazard information (EU)
EUH210 - Safety data sheet available on request.
- 2.3 Other hazards
- Vapours from heated material may cause irritation of respiratory tract
- Not flammable but will support combustion
- Not a PBT according to REACH Annex XIII
- Not a vPvB according to REACH Annex XIII

3 – COMPOSITION / COMPONENTS INFORMATION

3.1 **Substances:** n/a

3.2 **Mixtures:** Contains the following hazardous ingredients or ingredients with a workplace exposure limit

Chemical Name	Conc.	CAS No.	EC No.	Classification (REGULATION (EC) No 1272/2008) [CLP/GHS]	REACH Registration Number	WEL /OEL
Propylene glycol; propane-1,2-diol	< 50%	57-55-6	200-338-0	Not Classified	01-2119456809-23	Yes
Ethanediol; ethylene glycol	< 10%	107-21-1	203-473-3	Acute Tox. 4, H302; STOT RE 2, H373	01-2119456816-28	Yes

4 – FIRST AID MEASURES

4.1 Description of first aid measures

- Contact with eyes

If substance has got into eyes, immediately wash out with plenty of water for several minutes
Irrigate eyes thoroughly whilst lifting eyelids
Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.

- Contact with skin

Remove contaminated clothing immediately and drench affected skin with plenty of water. Then wash with soap and water

If skin irritation or rash occurs: Get medical advice/attention.

- Ingestion

If swallowed, rinse mouth with water (only if the person is conscious)

Give 200-300mls (half pint) water to drink

Get immediate medical advice/attention.

- Inhalation

Remove person to fresh air and keep comfortable for breathing.

Keep warm and at rest, in a half upright position. Loosen clothing

If breathing is difficult, oxygen should be given by a trained person

Apply artificial respiration only if patient is not breathing

Get medical advice/attention.

4.2 Most important symptoms and effects, both acute and delayed

- Contact with eyes

May cause redness and irritation

- Contact with skin

May be harmful if absorbed through skin

May cause redness and irritation

- Ingestion

May be harmful if swallowed

May cause damage to the kidneys

May cause damage to the central nervous system

May cause damage to the liver

May cause hypotension (low blood pressure)

May cause dizziness, confusion, headache or stupor

May cause pulmonary oedema

- Inhalation

Vapours or aerosols may cause irritation of eyes, nose and respiratory tract, coughing and tightness of chest

May cause drowsiness or dizziness

May cause breathing difficulty

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

- Treat symptomatically

- Monitoring is advised of cardio-vascular, lung and CNS functions as well as acid-base balance and kidney and liver parameters

5 – FIRE FIGHTING MEASURES

5.1 Extinguishing media:

- Suitable extinguishing media: water spray; foam; dry powder; carbon dioxide

- Unsuitable extinguishing media: high volume water jet

5.2 Special hazards arising from the substance or mixture

- May form explosive vapour/air mixtures

- Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback

- In a fire or if heated, a pressure increase will occur and the container may burst

- Gives off irritating or toxic fumes (or gases) in a fire.

- Decomposition products may include carbon oxides

5.3 Appropriated measures against fire:

- Keep container(s) exposed to fire cool, by spraying with water

- Shut off all ignition sources

- Collect contaminated fire extinguishing water separately. This MUST not be discharged into drains.

Prevent fire extinguishing water from contaminating surface or ground water.

- Special protective equipment:

Wear self-contained breathing apparatus (SCBA). Wear full protective clothing including chemical protection suit.

6 – ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures.

- Rescuers should take suitable precautions to avoid becoming casualties themselves

- No action shall be taken involving any personal risk or without suitable training

- Personal precautions for non-emergency personnel:

Avoid breathing vapours, mist or gas;

Avoid contact with skin and eyes;

Do not touch or walk through spilt material;

Wear protective clothing as per section 8;

Wash thoroughly after handling

- Personal precautions for emergency responders:

Rescuers should put on approved respiratory protection before entering the area to render first aid;

Only trained and authorised personnel should carry out emergency response;

Wear suitable protective clothing, including eye/face protection and gloves (neoprene or nitrile are recommended)

6.2 Environmental precautions.

- Do not flush spilt material into any public water system
- Do not allow to enter public sewers and watercourses
- If contamination of drainage systems or water courses is unavoidable, immediately inform appropriate authorities

6.3 Methods and material for containment and cleaning up

- Stop leak if safe to do so.
- Shut off all ignition sources
- Do not allow to enter public sewers and watercourses
- Small spills
Wipe up spillage with damp absorbent cloth or towel.
Paper towels can be used.
Place in appropriate container
Wash spill site with water and detergent.
Wash thoroughly after dealing with spillage
- Large spills
Absorb spillage in inert material and shovel up
Place in appropriate container
Seal containers and label them
Remove contaminated material to safe location for subsequent disposal
Ventilate the area and wash spill site after material pick-up is complete
Wash thoroughly after dealing with spillage

7 – HANDLING & STORAGE

7.1 Precautions for safe handling

- Avoid breathing vapours, mist or gas
- Use only in well ventilated areas
- Avoid contact with skin and eyes
- When using do not eat, drink or smoke
- Wash thoroughly after handling.
- Contaminated clothing should be laundered before reuse
- Contaminated work clothing should not be allowed out of the workplace.
- Eyewash bottles should be available

7.2 Conditions for safe storage, including any incompatibilities

- Store in a cool, dry well-ventilated place. Keep container tightly closed.
- Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback
- Protect from light
- Keep away from oxidisers, heat, flames or ignition sources
- Keep away from food, drink and animal feedingstuffs
- Incompatible with reducing agents
- Incompatible with strong acids
- Incompatible with alkalis (strong bases)
- Storage containers should not be made from aluminium

8 – EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1 Control parameters

- For currently recommended monitoring procedures, see HSE series 'Methods for the Determination of Hazardous Substances' (MDHS)
- Propylene glycol; propane-1,2-diol
WEL (long term) 150 ppm 474 mg/m³ (UK, total vapour & particulates)
WEL (long term) 10 mg/m³ (UK, particulates)
DNEL (inhalational) 168 mg/m³ Industry, Long Term, Systemic Effects
DNEL (inhalational) 10 mg/m³ Industry, Long Term, Local Effects
DNEL (inhalational) 50 mg/m³ Consumer, Long Term, Systemic Effects
DNEL (inhalational) 10 mg/m³ Consumer, Long Term, Local Effects
PNEC aqua (freshwater) 260 mg/l
PNEC aqua (intermittent releases, freshwater) 183 mg/l
PNEC aqua (marine water) 26 mg/l
PNEC (STP) 20 g/l
PNEC sediment (freshwater) 572 mg/kg
PNEC sediment (marine water) 57.2 mg/kg
PNEC terrestrial (soil) 50 mg/kg.
- Ethanediol; ethylene glycol
(EU) OELV (long term TWA) 20 ppm 52 mg/m³
(EU) OELV (short term limit value) 40 ppm 104 mg/m³
WEL (long term) 20 ppm 52 mg/m³ (UK, vapour, can be absorbed through the skin)
WEL (short term limit value) 40 ppm 104 mg/m³ (UK, vapour, can be absorbed through the skin)
WEL (long term): 10 mg/m³ (UK, particulates, can be absorbed through the skin)
DNEL (inhalational) 35 mg/m³ Industry, Long Term, Local Effects
DNEL (dermal) 106 mg/kg (bw/day) Industry, Long Term, Systemic Effects
DNEL (inhalational) 7 mg/m³ Consumer, Long Term, Local Effects

DNEL (dermal) 53 mg/kg (bw/day) Consumer, Long Term, Systemic Effects
PNEC aqua (freshwater) 10 mg/l
PNEC aqua (intermittent releases, freshwater) 10 mg/l
PNEC aqua (marine water) 1 mg/l
PNEC aqua (intermittent releases, marine water) 10 mg/l
PNEC (STP) 199.5 mg/l
PNEC sediment (freshwater) 37 mg/kg
PNEC sediment (marine water) 3.7 mg/kg
PNEC terrestrial (soil) 1.53 mg/kg

8.2 Exposure controls

- Selection and use of personal protective equipment should be based on a risk assessment of exposure potential
- Engineering controls

Engineering controls should be provided which maintain airborne concentrations below the relevant guidelines

Provide sufficient air exchange and/or exhaust in work rooms.

- Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment

Where a reusable half mask respirator is required, use EN 140, with gas/vapour filter EN 14387 type ABEK, or EN 405; EN 1827

Where a full face mask respirator is required, use EN 136, with gas/vapour filter EN 14387 type ABEK

- Skin protection

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and standard EN 374.

The selection of a suitable glove depends on work conditions and whether the product is present on its own or in combination with other substances. Breakthrough time is dependent on the characteristics of the brand of glove used and the supplier should be consulted.

- Glove material: nitrile rubber

Thickness: 0.35mm

Breakthrough time: >=8 hours

Reference: GESTIS

- Eye/face protection

Wear safety glasses approved to standard EN 166.

- Hygiene measures

Use good personal hygiene practices

Wash thoroughly after handling.



9 – PHYSICAL & CHEMICAL PROPERTIES

9.1 Physical and chemical properties

Appearance:	Liquid, clear, colourless
Odour:	None
Odour threshold:	No information available
pH value:	6 – 8
Melting/freezing point:	-3°C approx
Boiling point:	100°C
Flash point:	104°C
Evaporation rate:	No information available
Flammability (solid,gas):	Not applicable
Upper/lower explosive limits:	No information available
Vapour Pressure:	No information available
Vapour Density:	No information available
Relative Density:	Approx. 1
Solubility:	Soluble in water
Auto ignition Temperature:	>400°C
Decomposition temperature:	No information available

9.2 Other information: May form explosive vapour/air mixture

10 – STABILITY AND REACTIVITY

10.1 Reactivity Hazard:

- Reacts violently with acids and alkalis
- Reacts violently with oxidizing substances`
- Reacts violently with isocyanates

10.2 Chemical stability

- Considered stable under normal conditions

10.3 Possibility of hazardous reactions

- May form explosive vapour/air mixtures

10.4 Conditions to avoid

- Keep away from heat and sources of ignition

10.5 Incompatible materials

- Incompatible with strong acids
- Incompatible with alkalis (strong bases)
- Incompatible with oxidizing substances
- Incompatible with reducing agents
- Incompatible with isocyanates

10.6 Hazardous decomposition products

- Decomposition products may include carbon oxides

11 - TOXICOLOGICAL INFORMATION

11.1 - Acute Toxicity

Based on available data, the classification criteria are not met

The main route of exposure is via the respiratory tract and almost complete absorption is assumed.

Chemical Name	LD50 (oral, rat)	LC50 (inhalation, rat)	LD50 (dermal, rabbit)	Lethal dose for man
Propylene glycol; propane-1,2-diol	22 000 mg/kg	No data available	2 000 mg/kg	No data available
Ethenediol; ethylene glycol	7 712 mg/kg	2.5 mg/l (6 hr)	(mouse) 3 500 mg/kg	100 ml

Skin corrosion/irritation:

Based on available data, the classification criteria are not met

Serious eye damage/irritation

Based on available data, the classification criteria are not met

Respiratory or skin sensitisation

Based on available data, the classification criteria are not met

Germ cell mutagenicity

No evidence of mutagenic effects

Carcinogenicity

No evidence of carcinogenic effects

Reproductive toxicity

No evidence of reproductive effects

Specific target organ toxicity (STOT) - single exposure

No information available

Specific target organ toxicity (STOT) - repeated exposure

May cause damage to organs (kidney, liver, heart) through prolonged or repeated exposure.

Aspiration hazard

No information available

Contact with eyes

Mildly irritating to eyes

Contact with skin

May be harmful if absorbed through skin

May cause redness and irritation

Ingestion

The ingestion of significant quantities may cause dizziness, confusion, headache or stupor

The ingestion of significant quantities may cause drowsiness

The ingestion of significant quantities may cause diarrhoea

The ingestion of significant quantities may cause damage to kidneys

The ingestion of significant quantities may cause damage to central nervous system

The ingestion of significant quantities may cause damage to liver

The ingestion of significant quantities may cause nausea/vomiting

Inhalation

Effect may vary from irritation of the nasal mucous membrane to severe lung irritation.

May cause coughing

May cause dry throat

In cases of severe exposure, drowsiness may develop

In cases of severe exposure, dizziness, confusion, headache or stupor may develop

12 - ECOLOGICAL INFORMATION

12.1 Toxicity.

- Based on available data, the classification criteria are not met

- Propylene glycol; propane-1,2-diol

LC50 (fish) 40.613 g/l (4 days)

LC50 (aquatic invertebrates) 18.34 g/l (48 hr)

EC50 (aquatic algae) 19.3 - 24.2 g/l (72 hr)

- Ethenediol; ethylene glycol

LC50 (fish) 72.86 g/l (4 days)

EC50 (aquatic invertebrates) 100 mg/l (48 hr) EC50 (aquatic algae) 3.536 - 13 g/l (4 days)

- 12.2 Persistence and degradability**
 - Readily biodegradable
- 12.3 Bioaccumulative potential**
 - Bioaccumulation is not expected
- 12.4 Mobility in soil**
 - Completely soluble in water
 - This substance is poorly absorbed onto soils or sediments
- 12.5 Results of PBT and vPvB assessment**
 - Not a PBT according to REACH Annex XIII
 - Not a vPvB according to REACH Annex XIII
- 12.6 Other adverse effects**
 - Water Hazard Class 1 (Germany)

13 - DISPOSAL CONSIDERATION

- 13.1 Waste treatment methods**
 - Contaminated absorbent must be removed in sealed, plastic lined drums.
 - Do not reuse empty containers without commercial cleaning or reconditioning
 - Do not pierce or burn container, even after use
 - Empty containers may contain flammable vapours
 - Avoid release to the environment.
 - Disposal should be in accordance with local, state or national legislation
- 13.2 Classification**
 - The waste must be identified according to the List of Wastes (2000/532/EC)

14 - TRANSPORT INFORMATION AND CONDITIONS

- 14.1 **Non-hazardous.** No restrictions apply

15 - REGULATORY INFORMATION

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
 - This safety data sheet is provided in compliance with REACH Regulation (EC) No 1907/2006 as amended by Regulation (EU) 2015/830. Regulation (EC) No. 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP Regulation) applies in Europe
- 15.2 Chemical safety assessment**
 - A REACH chemical safety assessment has not been carried out

16 - OTHER INFORMATION

- 16.1 The information supplied in this Safety Data Sheet is designed only as guidance for the safe use, storage and handling of the product. This information is correct to the best of our knowledge and belief at the date of publication, however no guarantee is made to its accuracy. This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process.

Sources of data: Information from published literature and supplier safety data sheets

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

- Not classified based on calculation and concentration thresholds
- Acronyms
 - CAS: Chemical Abstracts Service
 - DNEL: Derived No-Effect Level
 - EC: European Community
 - EC50: Effective Concentration, 50%
 - GHS: Globally Harmonised System
 - LC50: Lethal Concentration, 50%
 - LD50: Lethal Dose, 50%
 - NOAEL: No observed adverse effect level
 - NOEC: No observed effect concentration
 - OEL: Occupational Exposure Limit
 - PBT: Persistent, Bioaccumulative and Toxic
 - PNEC: Predicted No-Effect Concentration
 - REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
 - STOT RE: Specific Target Organ Toxicity Repeated Exposure
 - STOT SE: Specific Target Organ Toxicity Single Exposure
 - vPvB: very Persistent and very Bioaccumulative
 - WEL: Workplace Exposure Limit