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SAFETY DATA SHEET

(REACH regulation (EC) n° 1907/2006 - n° 2020/878)

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

1.1. Product identifier

Product name : ADEQWATION

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

Relevant identified uses: Smoke detector aerosol.

1.3. Details of the supplier of the safety data sheet

Registered company name : ADEQWATION SAS.

Address : 66, rue Hector Berlioz.77270.VILLEPARISIS.France.

Telephone : -. Fax : .

contact@adeqwation.fr

<https://www.adeqwation.fr>

1.4. Emergency telephone number : +33 (0)1 45 42 59 59.

Association/Organisation : INRS / ORFILA <http://www.centres-antipoison.net>.

Other emergency numbers

National Poisons Information Service of England: <http://npis.org> - NHS 111: dial 111 - National Poisons Information Centre of Ireland: 353 (1) 809 2166 - European Emergency Number Association (EENA) : 112

SECTION 2 : HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

In compliance with EC regulation No. 1272/2008 and its amendments.

Aerosol, Category 3 (Aerosol 3, H229).

This mixture does not present a health hazard with the exception of possible occupational exposure thresholds (see paragraphs 3 and 8).

This mixture does not present an environmental hazard. No known or foreseeable environmental damage under standard conditions of use.

The propellant gas is taken into account when determining the health and environmental classification of the mixture.

2.2. Label elements

Flavouring mixture for industrial use.

Mixture for aerosol application.

In compliance with EC regulation No. 1272/2008 and its amendments.

Signal Word :

WARNING

Hazard statements :

H229 Pressurised container: May burst if heated.

Precautionary statements - General :

P101 If medical advice is needed, have product container or label at hand.

P102 Keep out of reach of children.

P103 Read carefully and follow all instructions.

Precautionary statements - Prevention :

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P251 Do not pierce or burn, even after use.

Precautionary statements - Storage :

P410 + P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

2.3. Other hazards

The mixture does not contain substances classified as 'Substances of Very High Concern' (SVHC) \geq 0.1% published by the European Chemicals Agency (ECHA) under article 59 of REACH: <http://echa.europa.eu/fr/candidate-list-table>

The mixture fulfils neither the PBT nor the vPvB criteria for mixtures in accordance with annexe XIII of the REACH regulations EC 1907/2006.

The mixture does not contain substances \geq 0.1% with endocrine disrupting properties in accordance with the criteria of the Delegated Regulation (EU) 2017/2100 of the Commission or Regulation (EU) 2018/605 of the Commission.

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SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS**3.2. Mixtures****Composition :**

Identification	Classification (EC) 1272/2008	Note	%
CAS: 29118-24-9 EC: 471-480-0 REACH: 01-0000019758-54 HFO-1234ZE	GHS04 Wng Press. Gas, H280	[i] [vii]	50 <= x % < 100
INDEX: 603-117-00-0 CAS: 67-63-0 EC: 200-661-7 REACH: 01-2119457558-25 PROPAN-2-OL	GHS02, GHS07 Dgr Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336	[i]	2.5 <= x % < 10

Information on ingredients :

(Full text of H-phrases: see section 16)

[i] Substance for which maximum workplace exposure limits are available.

[vii] Propellant gas

SECTION 4 : FIRST AID MEASURES

As a general rule, in case of doubt or if symptoms persist, always call a doctor.

NEVER induce swallowing by an unconscious person.

4.1. description of first aid measures**In the event of exposure by inhalation :**

If inhaled, move the patient into the fresh air and keep warm and at rest.

If breathing is irregular or has stopped, proceed with artificial respiration and seek medical attention.

In the event of splashes or contact with eyes :

Wash thoroughly with fresh, clean water for 15 minutes holding the eyelids open.

In the event of splashes or contact with skin :

Remove contaminated clothing and wash the skin thoroughly with soap and water or a recognised cleaner.

In the event of swallowing :

Keep the person exposed at rest. Do not force vomiting.

Seek medical attention, showing the label.

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

No data available.

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

No data available.

SECTION 5 : FIREFIGHTING MEASURES

Non-flammable.

5.1. Extinguishing media**Suitable methods of extinction**

In the event of a fire, use :

- sprayed water or water mist
- foam
- multipurpose ABC powder
- BC powder
- carbon dioxide (CO₂)

Unsuitable methods of extinction

In the event of a fire, do not use :

- water jet

5.2. Special hazards arising from the substance or mixture

A fire will often produce a thick black smoke. Exposure to decomposition products may be hazardous to health.

Do not breathe in smoke.

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In the event of a fire, the following may be formed :

- carbon monoxide (CO)
- carbon dioxide (CO₂)

5.3. Advice for firefighters

Due to the toxicity of the gas emitted on thermal decomposition of the products, fire-fighting personnel are to be equipped with autonomous insulating breathing apparatus.

SECTION 6 : ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency procedures**

Consult the safety measures listed under headings 7 and 8.

For first aid worker

First aid workers will be equipped with suitable personal protective equipment (See section 8).

6.2. Environmental precautions

Contain and control the leaks or spills with non-combustible absorbent materials such as sand, earth, vermiculite, diatomaceous earth in drums for waste disposal.

Prevent any material from entering drains or waterways.

6.3. Methods and material for containment and cleaning up

Clean preferably with a detergent, do not use solvents.

6.4. Reference to other sections

No data available.

SECTION 7 : HANDLING AND STORAGE

Requirements relating to storage premises apply to all facilities where the mixture is handled.

7.1. Precautions for safe handling

Always wash hands after handling.

Ensure that there is adequate ventilation, especially in confined areas.

Fire prevention :

Handle in well-ventilated areas.

Do not pierce or burn, even after use.

Prevent access by unauthorised personnel.

Recommended equipment and procedures :

For personal protection, see section 8.

Observe precautions stated on label and also industrial safety regulations.

Do not breathe in aerosols.

Packages which have been opened must be reclosed carefully and stored in an upright position.

Prohibited equipment and procedures :

No smoking, eating or drinking in areas where the mixture is used.

7.2. Conditions for safe storage, including any incompatibilities

No data available.

Storage

Keep out of reach of children.

Keep the container tightly closed in a dry, well-ventilated place.

The floor must be impermeable and form a collecting basin so that, in the event of an accidental spillage, the liquid cannot spread beyond this area.

Pressurised container: protect from sunlight and do not expose to temperatures exceeding 50°C.

Packaging

Always keep in packaging made of an identical material to the original.

7.3. Specific end use(s)

No data available.

SECTION 8 : EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. Control parameters****Occupational exposure limits :**

- ACGIH TLV (American Conference of Governmental Industrial Hygienists, Threshold Limit Values, 2010) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
67-63-0	200 ppm	400 ppm		A4; BEI	

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- Germany - AGW (BAuA - TRGS 900, 02/2022) :

CAS	VME :	VME :	Excess	Notes
29118-24-9		1000 ppm 4700 mg/m3		2 (II)
67-63-0		200 ppm 500 mg/m3		2(II)

- Australia (NOHSC: 3008, 1995) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
67-63-0	400 ppm 983 mg/m3	500 ppm 1230 mg/m3		H	

- Austria (BGBl. II Nr. 156/2021) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
67-63-0	200 ppm 500 mg/m3	800 ppm 2000 mg/m3			

- Belgium (Royal decree of 11/05/2021) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
67-63-0	200 ppm 500 mg/m3	400 ppm 1000 mg/m3			

- France (INRS - Outils 65 / 2021-1849, 2021-1763, decree of 09/12/2021) :

CAS	VME-ppm :	VME-mg/m3 :	VLE-ppm :	VLE-mg/m3 :	Notes :	TMP No :
67-63-0			400	980		84

- Switzerland (Suva 2021) :

CAS	VME	VLE	Valeur plafond	Notations
29118-24-9	1000 ppm 4700 mg/m3	2000 ppm 9400 mg/m3		SSC
67-63-0	200 ppm 500 mg/m3	400 ppm 1000 mg/m3		SSCB

- UK / WEL (Workplace exposure limits, EH40/2005, Fourth Edition 2020) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
67-63-0	400 ppm 999 mg/m3	500 ppm 1250 mg/m3			

- USA / OSHA PEL (Occupational Safety and Health Administration, Permissible Exposure Limits) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
67-63-0	400 ppm 980 mg/m3				

8.2. Exposure controls

Personal protection measures, such as personal protective equipment

Pictogram(s) indicating the obligation of wearing personal protective equipment (PPE) :



Use personal protective equipment that is clean and has been properly maintained.

Store personal protective equipment in a clean place, away from the work area.

Never eat, drink or smoke during use. Remove and wash contaminated clothing before re-using. Ensure that there is adequate ventilation, especially in confined areas.

- Eye / face protection

Avoid contact with eyes.

Use eye protectors designed to protect against liquid splashes

Before handling, wear safety goggles in accordance with standard EN166.

- Hand protection

Wear suitable protective gloves in the event of prolonged or repeated skin contact.

- Body protection

Work clothing worn by personnel shall be laundered regularly.

After contact with the product, all parts of the body that have been soiled must be washed.

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SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES**9.1. Information on basic physical and chemical properties****Physical state**

Physical state : Fluid liquid.
Spray.

Colour

Colour: Not stated.

Odour

Odour threshold : Not stated.

Freezing point

Freezing point / Freezing range : Not stated.

Boiling point or initial boiling point and boiling range

Boiling point/boiling range : Not relevant.

Flammability

Flammability (solid, gas) : Not stated.

Lower and upper explosion limit

Explosive properties, lower explosivity limit (%) Not stated.

:

Explosive properties, upper explosivity limit (%) Not stated.

:

Flash point

Flash point interval : Not relevant.

Auto-ignition temperature

Self-ignition temperature : Not relevant.

Decomposition temperature

Decomposition point/decomposition range : Not relevant.

pH

pH (aqueous solution) : Not stated.

pH : Not relevant.

Kinematic viscosity

Viscosity : Not stated.

Solubility

Water solubility : Insoluble.

Fat solubility : Not stated.

Partition coefficient n-octanol/water (log value)

Partition coefficient: n-octanol/water : Not stated.

Vapour pressure

Vapour pressure (50°C) : Below 110 kPa (1.10 bar).

Density and/or relative density

Density : < 1

Relative vapour density

Vapour density : Not stated.

Particle characteristics

The mixture does not contain nanoforms.

9.2. Other information

No data available.

9.2.1. Information with regard to physical hazard classes

No data available.

Aerosols

Chemical combustion heat : < 20 kJ/g.

Inflammation time : > 300 s/m³.

9.2.2. Other safety characteristics

No data available.

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SECTION 10 : STABILITY AND REACTIVITY

10.1. Reactivity

No data available.

10.2. Chemical stability

This mixture is stable under the recommended handling and storage conditions in section 7.

10.3. Possibility of hazardous reactions

When exposed to high temperatures, the mixture can release hazardous decomposition products, such as carbon monoxide and dioxide, fumes and nitrogen oxide.

10.4. Conditions to avoid

Avoid :

- heat
- flames and hot surfaces

10.5. Incompatible materials

Keep away from :

- acids
- oxidising agents

Metal aerosol cans, do not come into contact with oxidants, acids or bases.

10.6. Hazardous decomposition products

The thermal decomposition may release/form :

- carbon monoxide (CO)
- carbon dioxide (CO₂)

SECTION 11 : TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Splashes in the eyes may cause irritation and reversible damage

11.1.1. Substances

Acute toxicity :

HFO-1234ZE (CAS: 29118-24-9)

Inhalation route (Dusts/mist) :

LC50 > 965 mg/l

Species : Rat

11.1.2. Mixture

No toxicological data available for the mixture.

11.2. Information on other hazards

Endocrine disrupting properties

The mixture does not contain any substance evaluated as an endocrine disruptor with effects on human health.

Monograph(s) from the IARC (International Agency for Research on Cancer) :

CAS 67-63-0 : IARC Group 3 : The agent is not classifiable as to its carcinogenicity to humans.

SECTION 12 : ECOLOGICAL INFORMATION

12.1. Toxicity

12.1.1. Substances

HFO-1234ZE (CAS: 29118-24-9)

Crustacean toxicity :

EC50 > 160 mg/l

Species : Daphnia magna

Duration of exposure : 48 h

Algae toxicity :

NOEC > 170 mg/l

12.1.2. Mixtures

No aquatic toxicity data available for the mixture.

12.2. Persistence and degradability

12.2.1. Substances

HFO-1234ZE (CAS: 29118-24-9)

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Biodegradability : Non-rapidly degradable.

12.3. Bioaccumulative potential**12.3.1. Substances**

HFO-1234ZE (CAS: 29118-24-9)

Octanol/water partition coefficient : log K_{ow} = 2.01

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

No data available.

12.6. Endocrine disrupting properties

The mixture does not contain any substance evaluated as an endocrine disruptor with environmental effects.

12.7. Other adverse effects

No data available.

German regulations concerning the classification of hazards for water (WGK, AwSV Annex I, KBws) :

WGK 1 : Slightly hazardous for water.

SECTION 13 : DISPOSAL CONSIDERATIONS

Proper waste management of the mixture and/or its container must be determined in accordance with Directive 2008/98/EC.

13.1. Waste treatment methods

Do not pour into drains or waterways.

Waste :

Waste management is carried out without endangering human health, without harming the environment and, in particular without risk to water, air, soil, plants or animals.

Recycle or dispose of waste in compliance with current legislation, via a certified collector or company.

Do not contaminate the ground or water with waste, do not dispose of waste into the environment.

Soiled packaging :

Empty container completely. Keep label(s) on container.

Give to a certified disposal contractor.

SECTION 14 : TRANSPORT INFORMATION

Transport product in compliance with provisions of the ADR for road, RID for rail, IMDG for sea and ICAO/IATA for air transport (ADR 2023 - IMDG 2022 [41-22] - ICAO/IATA 2024 [65]).

14.1. UN number or ID number

1950

14.2. UN proper shipping name

UN1950=AEROSOLS, asphyxiant

14.3. Transport hazard class(es)

- Classification :



2.2

14.4. Packing group

-

14.5. Environmental hazards

-

14.6. Special precautions for user

ADR/RID	Class	Code	Pack gr.	Label	Ident.	LQ	Provis.	EQ	Cat.	Tunnel
	2	5A	-	2.2	-	1 L	190 327 344 625	E0	3	E

IMDG	Class	2°Label	Pack gr.	LQ	EMS	Provis.	EQ	Stowage Handling	Segregation
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	2	See SP63	-	See SP277	F-D. S-U	63 190 277 327 344 381 959	E0	- SW1 SW22	SG69
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IATA	Class	2°Label	Pack gr.	Passager	Passager	Cargo	Cargo	note	EQ
	2.2	-	-	203	75 kg	203	150 kg	A98 A145 A167 A802	E0
	2.2	-	-	Y203	30 kg G	-	-	A98 A145 A167 A802	E0

For limited quantities, see part 2.7 of the OACI/IATA and chapter 3.4 of the ADR and IMDG.

For excepted quantities, see part 2.6 of the OACI/IATA and chapter 3.5 of the ADR and IMDG.

14.7. Maritime transport in bulk according to IMO instruments

No data available.

SECTION 15 : REGULATORY INFORMATION**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****Classification and labelling information included in section 2:**

The following regulations have been used:

- EU Regulation No. 1272/2008 amended by EU Regulation No. 2023/707.
- EU Regulation No. 1272/2008 amended by EU Regulation No. 2024/197. (ATP 21)

Container information:

No data available.

Restrictions applied under Title VIII of Regulation (EC) No. 1907/2006 (REACH):

The mixture does not contain any substance restricted under Annex XVII of Regulation (EC) No. 1907/2006 (REACH):
<https://echa.europa.eu/substances-restricted-under-reach>.

Explosives precursors :

The mixture does not contain any substance subject to Regulation (EU) 2019/1148 on the marketing and use of explosives precursors.

Particular provisions :

No data available.

German regulations concerning the classification of hazards for water (WGK, AwSV Annex I, KBws) :

WGK 1 : Slightly hazardous for water.

Swiss ordinance on the incentive tax on volatile organic compounds :

67-63-0 propane-2-ol (alcool isopropylique)

15.2. Chemical safety assessment

No data available.

SECTION 16 : OTHER INFORMATION

Since the user's working conditions are not known by us, the information supplied on this safety data sheet is based on our current level of knowledge and on national and community regulations.

The mixture must not be used for other uses than those specified in section 1 without having first obtained written handling instructions.

It is at all times the responsibility of the user to take all necessary measures to comply with legal requirements and local regulations.

The information in this safety data sheet must be regarded as a description of the safety requirements relating to the mixture and not as a guarantee of the properties thereof.

Wording of the phrases mentioned in section 3 :

H225	Highly flammable liquid and vapour.
H280	Contains gas under pressure; may explode if heated.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

Abbreviations and acronyms :

LC50 : The concentration of a test substance resulting in 50% lethality in a given period.

EC50 : The effective concentration of substance that causes 50% of the maximum response.

NOEC : The concentration with no observed effect.

REACH : Registration, Evaluation, Authorization and Restriction of Chemical Substances.

STEL : Short-term exposure limit

TWA : Time Weighted Averages

TMP : French Occupational Illness table

TLV : Threshold Limit Value (exposure)

AEV : Average Exposure Value.

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ADR : European agreement concerning the international carriage of dangerous goods by Road.

IMDG : International Maritime Dangerous Goods.

IATA : International Air Transport Association.

ICAO : International Civil Aviation Organisation

RID : Regulations concerning the International carriage of Dangerous goods by rail.

WGK : Wassergefährdungsklasse (Water Hazard Class).

PBT: Persistent, bioaccumulable and toxic.

vPvB : Very persistent, very bioaccumulable.

SVHC : Substances of very high concern.