

## SAFETY DATA SHEET

according to 1907/2006/EC, Article 31

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### RS44 (R424A)

Revision 1

Revision date 2014-10-16

#### SECTION 1: Identification of the substance/mixture and of the company/undertaking

##### 1.1. Product identifier

Product name RS44 (R424A)

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

Product Use	[SU22] Professional uses: Public domain (administration, education, entertainment, services, craftsmen); [SU19] Building and construction work; [PC16] Heat transfer fluids; [PROC1] Use in closed process, no likelihood of exposure; [ERC7] Industrial use of substances in closed systems; [AC1] Vehicles; ----- [SU22] Professional uses: Public domain (administration, education, entertainment, services, craftsmen); [SU19] Building and construction work; [PC16] Heat transfer fluids; [PROC1] Use in closed process, no likelihood of exposure; [ERC7] Industrial use of substances in closed systems; [AC2] Machinery, mechanical appliances, electrical/electronic articles; ----- [SU22] Professional uses: Public domain (administration, education, entertainment, services, craftsmen); [SU19] Building and construction work; [PC16] Heat transfer fluids; [PROC1] Use in closed process, no likelihood of exposure; [ERC7] Industrial use of substances in closed systems; [AC3] Electrical batteries and accumulators;
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##### 1.3. Details of the supplier of the safety data sheet

Company	A-Gas UK Limited
Address	Banyard Road Portbury West Bristol BS20 7XH United Kingdom
Telephone	[+44] (0) 1275 376600
Fax	[+44] (0) 1275 376601
Email address of the competent person	info.uk@agas.com

##### 1.4. Emergency telephone number

Emergency telephone number	[+44] (0) 1275 376600 24 hr
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#### SECTION 2: Hazards identification

##### 2.1. Classification of the substance or mixture

Main hazards	No Significant Hazard
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##### 2.2. Label elements

Risk phrases	No Significant Hazard.
Safety phrases	S7/9 - Keep container tightly closed and in a well-ventilated place. S24/25 - Avoid contact with skin and eyes. S47 - Keep at temperature not exceeding °C. S51 - Use only in well-ventilated areas. S61 - Avoid release to the environment. Refer to special instructions/safety data sheets.

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## 2.3. Other hazards

Other hazards	No data available.
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## SECTION 3: Composition/information on ingredients

## 3.2. Mixtures

67/548/EEC / 1999/45/EC

Chemical Name	Index No.	CAS No.	EC No.	REACH Registration Number	Conc. (%w/w)	Classification
1,1,1,2-Tetrafluoroethane		811-97-2	212-377-0		40 - 50%	
2-Methylbutane	601-006-00-1	78-78-4	201-142-8		0.5 - 1%	F+; R12 Xn; R65 R66 R67 N; R51/53

## SECTION 4: First aid measures

## 4.1. Description of first aid measures

Inhalation	Move the exposed person to fresh air. If breathing is difficult give oxygen.
Eye contact	Rinse immediately with plenty of water for 15 minutes holding the eyelids open.
Skin contact	Allow to evaporate. Remove contaminated clothing. Rinse immediately with plenty of water for 15 minutes.
Ingestion	Not applicable.

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

Inhalation	May cause irritation to respiratory system.
Eye contact	May cause irritation to eyes.
Skin contact	May cause irritation to skin.
Ingestion	Not applicable.

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

Inhalation	Seek medical attention if irritation or symptoms persist.
Eye contact	Seek medical attention if irritation or symptoms persist.
Skin contact	Seek medical attention if irritation or symptoms persist.
Ingestion	Seek medical attention if irritation or symptoms persist.

## SECTION 5: Firefighting measures

## 5.1. Extinguishing media

	Use extinguishing media appropriate to the surrounding fire conditions.
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## 5.2. Special hazards arising from the substance or mixture

	Heating produces hazardous fumes.
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## 5.3. Advice for firefighters

	Wear self contained breathing apparatus and protective clothing.
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## SECTION 6: Accidental release measures

## 6.1. Personal precautions, protective equipment and emergency procedures

	Ensure adequate ventilation of the working area. Evacuate personnel to a safe area. Prevent further spillage if safe. Keep public away from danger area. Keep upwind. Eliminate all sources of ignition.
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## 6.2. Environmental precautions

	Avoid release to the environment. Refer to special instructions/Safety data sheets.
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## 6.3. Methods and material for containment and cleaning up

	Do not allow product to enter drains.
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## 6.4. Reference to other sections

	See section 3, 8, 13 for further information.
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**SECTION 7: Handling and storage****7.1. Precautions for safe handling**

Ensure adequate ventilation of the working area. Keep away from sources of ignition - No smoking.  
Keep away from heat. Heating may cause an explosion.

**7.2. Conditions for safe storage, including any incompatibilities**

Keep in a cool, dry, well ventilated area. Store in original container. Keep away from incompatible materials.

**7.3. Specific end use(s)**

See section 1.2. Relevant identified uses of the substance or mixture and uses advised against for further information.

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters**

See section 8.2 for further information.

**8.1.1. Exposure Limit Values**

1,1,1,2-Tetrafluoroethane	WEL 8-hr limit ppm: 1000 WEL 15 min limit ppm: -	WEL 8-hr limit mg/m3: 4240 WEL 15 min limit mg/m3: -
2-Methylbutane	WEL 8-hr limit ppm: 600 WEL 15 min limit ppm: -	WEL 8-hr limit mg/m3: 1800 WEL 15 min limit mg/m3: -

**8.2. Exposure controls****8.2.1. Appropriate engineering controls**

Ensure adequate ventilation of the working area.

**8.2.2. Individual protection measures**

Wear protective clothing.  
Wash all contaminated clothing before reuse.

**Eye / face protection**

Approved safety goggles.  
In case of splashing, wear: Face shield.

**Skin protection - Handprotection**

Wear suitable gloves.

**Respiratory protection**

In case of insufficient ventilation, wear suitable respiratory equipment.

**Occupational exposure controls**

Adopt best Manual Handling considerations when handling, carrying and dispensing.  
Keep away from food, drink and animal feedingstuffs.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

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## 9.1. Information on basic physical and chemical properties

<b>Appearance</b>	Liquified Gas.
<b>Colour</b>	Colourless
<b>Odour</b>	Slight
<b>Vapour pressure</b>	9.67 bar @ 25°C
<b>Initial boiling point</b>	-38.7
<b>Flash point</b>	No data available
<b>Evaporation rate</b>	No data available
<b>Flammability limits</b>	No data available
<b>Vapour Flammability</b>	No data available
<b>pH</b>	No data available
<b>Melting point</b>	No data available
<b>Freezing Point</b>	No data available
<b>Vapour density</b>	No data available
<b>Relative density</b>	No data available
<b>Fat Solubility</b>	No data available
<b>Partition coefficient</b>	No data available
<b>Autoignition temperature</b>	No data available
<b>Viscosity</b>	No data available
<b>Explosive properties</b>	No data available
<b>Oxidising properties</b>	No data available

## 9.2. Other information

<b>Conductivity</b>	No data available
<b>Surface tension</b>	No data available
<b>Gas group</b>	No data available

## SECTION 10: Stability and reactivity

## 10.1. Reactivity

No data is available on this product.

## 10.2. Chemical stability

Stable under normal conditions. Vapours are heavier than air.

## 10.3. Possibility of hazardous reactions

No data is available on this product.

## 10.4. Conditions to avoid

Heat.

## 10.5. Incompatible materials

No data is available on this product.

## 10.6. Hazardous decomposition products

No data is available on this product.

## SECTION 11: Toxicological information

## 11.1. Information on toxicological effects

No data available.

## 11.1.4. Toxicological Information

<b>1,1,1,2-Tetrafluoroethane</b>	<b>Inhalation Rat LC50/4H h:</b> 1500 gm/m <sup>3</sup>	<b>Inhalation Mouse LC50/2H h:</b> 1700 gm/m <sup>3</sup>
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## SECTION 12: Ecological information

## 12.1. Toxicity

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## 12.1. Toxicity

1,1,1,2-Tetrafluoroethane	Daphnia EC50/48h: 980 mg/l	Rainbow trout LC50/96h: 450 mg/l
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## 12.2. Persistence and degradability

	No data is available on this product.
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## 12.3. Bioaccumulative potential

	No data is available on this product.
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## 12.4. Mobility in soil

	No data is available on this product.
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## 12.5. Results of PBT and vPvB assessment

	No data is available on this product.
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## 12.6. Other adverse effects

	No data is available on this product.
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## SECTION 13: Disposal considerations

## 13.1. Waste treatment methods

	Dispose of in compliance with all local and national regulations.
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## SECTION 14: Transport information

## Hazard pictograms

	
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## 14.1. UN number

	UN3163
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## 14.2. UN proper shipping name

	LIQUEFIED GAS, N.O.S. (Pentafluoroethane, 1,1,1,2-tetrafluoroethane, iso-Pentane, Butane, Isobutane)
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## 14.3. Transport hazard class(es)

ADR/RID	2
Subsidiary risk	-
IMDG	2.2
Subsidiary risk	-
IATA	2.2
Subsidiary risk	-

## 14.4. Packing group

Packing group	-
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## 14.5. Environmental hazards

Environmental hazards	No
Marine pollutant	No

## 14.6. Special precautions for user

	No data available.
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## 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

	Not applicable.
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## ADR/RID

Hazard ID	20
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ADR/RID	
Tunnel Category	(C/E)
IMDG	
EmS Code	F-C S-V
IATA	
Packing Instruction (Cargo)	200
Maximum quantity	150 kg
Packing Instruction (Passenger)	200
Maximum quantity	75 kg

**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

Regulations	<p>COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.</p> <p>REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.</p>
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**15.2. Chemical safety assessment**

	No data is available on this product.
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**SECTION 16: Other information****Other information**

Revision	<p>This document differs from the previous version in the following areas:</p> <ul style="list-style-type: none"> <li>1 - Description.</li> <li>1 - Product Use.</li> <li>7 - 7.3. Specific end use(s).</li> <li>9 - Water solubility.</li> <li>9 - 9.1. Information on basic physical and chemical properties (Appearance).</li> <li>9 - 9.1. Information on basic physical and chemical properties (Colour).</li> <li>9 - 9.1. Information on basic physical and chemical properties (Odour).</li> <li>9 - 9.1. Information on basic physical and chemical properties (PH).</li> <li>9 - 9.1. Information on basic physical and chemical properties (Melting point).</li> <li>9 - 9.1. Information on basic physical and chemical properties (Flash point).</li> <li>9 - 9.1. Information on basic physical and chemical properties (Flammability limits).</li> <li>9 - 9.1. Information on basic physical and chemical properties (Autoignition temperature).</li> <li>9 - 9.1. Information on basic physical and chemical properties (Explosive properties).</li> <li>9 - 9.1. Information on basic physical and chemical properties (Oxidising properties).</li> <li>9 - 9.1. Information on basic physical and chemical properties (Relative density).</li> <li>9 - 9.1. Information on basic physical and chemical properties (Viscosity).</li> <li>9 - 9.1. Information on basic physical and chemical properties (Vapour density).</li> <li>9 - 9.1. Information on basic physical and chemical properties (Evaporation rate).</li> <li>9 - 9.1. Information on basic physical and chemical properties (Freezing Point).</li> <li>9 - 9.1. Information on basic physical and chemical properties (Fat Solubility).</li> <li>9 - 9.2. Other information (Conductivity).</li> <li>9 - 9.2. Other information (Partition coefficient).</li> <li>9 - 9.2. Other information (Gas group).</li> </ul>
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**Other information**

<b>Text of risk phrases in Section 3</b>	9 - 9.2. Other information (Surface tension).
	R12 - Extremely flammable. R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R65 - Harmful: may cause lung damage if swallowed. R66 - Repeated exposure may cause skin dryness or cracking. R67 - Vapours may cause drowsiness and dizziness.

**Further information**

	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.
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