

CLAIMS

1. A refrigerant composition consisting essentially of:
- | | | |
|----------------|-------|--|
| carbon dioxide | 1-35% | |
|----------------|-------|--|
- 5 an HFO selected from the group consisting of:
- | | | |
|--|-------|--------|
| R1234yf and R1234ze(E) and mixtures thereof, | | 30-92% |
| R32 | 1-30% | |
| R125 | 1-30% | |
| R227ea | 1-15% | |
| 10 R134a | 0-15% | |
- wherein the percentages are by mass and are selected from the ranges quoted to total 100%.
2. A refrigerant composition as claimed in claim 1 consisting essentially of:
- | | | |
|-------------------|-------|--|
| 15 carbon dioxide | 5-20% | |
|-------------------|-------|--|
- an HFO selected from the group consisting of:
- | | | |
|--|-------|--------|
| R1234yf and R1234ze(E) and mixtures thereof, | | 30-92% |
| R32 | 5-30% | |
| R125 | 5-30% | |
| 20 R227ea | 1-15% | |
| R134a | 0-15% | |
- wherein the percentages are by mass and are selected from the ranges quoted to total 100%.
- 25 3. A refrigerant composition, as claimed in claim 1 consisting essentially of:
- | | | |
|----------------|--------|--|
| R125 | 6-23% | |
| carbon dioxide | 6-20% | |
| R1234ze | 55-68% | |
| R227ea | 2-15% | |
| 30 R32 | 6-20% | |
- wherein the percentages are by mass and are selected from the ranges quoted to total 100%.

4. A refrigerant composition, as claimed in claim 3 consisting essentially of:

	R125	6-20%
	carbon dioxide	6-18%
5	R1234ze	55-67%
	R227ea	3-15%
	R32	7-20%

wherein the percentages are by mass and are selected from the ranges quoted to total 100%.

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5. A refrigerant composition, as claimed in claim 4 consisting essentially of:

	R125	9.5%
	carbon dioxide	8%
	R1234ze	65%
15	R227ea	8%
	R32	9.5%

wherein the percentages are by mass.

6. A refrigerant composition, as claimed in claim 1 consisting essentially of one of the following compositions:

(a)

	R125	9.5%
	carbon dioxide	9%
	R1234ze	57%
25	R227ea	15%
	R32	9.5%

wherein the percentages are by mass.

(b)

30	R125	9.5%
	carbon dioxide	9%
	R1234ze	58%

R227ea 14%

R32 9.5%

wherein the percentages are by mass.

5 (c)

R125 19%

carbon dioxide 16%

R1234ze 41%

R227ea 5%

10 R32 19%

wherein the percentages are by mass.

7. A refrigerant composition, as claimed in claim 1 consisting essentially of:

R125 12-23%

15 carbon dioxide 8-20%

R1234ze 35-55%

R227ea 3-10%

R32 12-23%

wherein the percentages are by mass and are selected from the ranges quoted to total

20 100%.

8. A refrigerant composition, as claimed in claim 1, consisting essentially of one of the following compositions:

(a)

25 R125 9.5%

carbon dioxide 9%

R1234ze 58%

R227ea 7%

R32 9.5%

30 R134a 7%

wherein the percentages are by mass.

(b)

	R125	11%
	carbon dioxide	11%
	R1234ze	57%
5	R227ea	7%
	R32	11%
	R134a	3%
	wherein the percentages are by mass.	

10 (c)

	R125	18%
	carbon dioxide	11%
	R1234ze	44%
	R227ea	6%
15	R32	17%
	R134a	4%
	wherein the percentages are by mass.	

(d)

20	R125	11%
	carbon dioxide	11%
	R1234ze	55%
	R227ea	7%
	R32	11%
25	R134a	5%
	wherein the percentages are by mass.	

(e)

	R125	13%
30	carbon dioxide	11%
	R1234ze	53%
	R227ea	7%

R32 13%

R134a 3%

wherein the percentages are by mass.

5 (f)

R125 13%

carbon dioxide 11%

R1234ze 55%

R227ea 7%

10 R32 13%

R134a 1%

wherein the percentages are by mass.

(g)

15 R125 14%

carbon dioxide 11%

R1234ze 51%

R227ea 7%

R32 14%

20 R134a 3%

wherein the percentages are by mass.

(h)

R125 14%

25 carbon dioxide 11%

R1234ze 55%

R227ea 7%

R32 13%

wherein the percentages are by mass.

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(i)

R125 10.5%

	carbon dioxide	11%
	R1234ze	57%
	R227ea	7%
	R32	10.5%
5	R134a	4%
	wherein the percentages are by mass.	

	(j)	
	R125	10.5%
10	carbon dioxide	11%
	R1234ze	58%
	R227ea	7%
	R32	10.5%
	R134a	3%
15	wherein the percentages are by mass.	

	(k)	
	R125	11.5%
	carbon dioxide	10%
20	R1234ze	57%
	R227ea	7%
	R32	11.5%
	R134a	3%
	wherein the percentages are by mass.	

25		
	(l)	
	R125	11.5%
	carbon dioxide	10%
	R1234ze	56%
30	R227ea	8%
	R32	11.5%
	R134a	3%

wherein the percentages are by mass.

9. A refrigerant composition, as claimed in claim 1, consisting essentially of one of the following compositions:

5 (a)

R125 19%

carbon dioxide 10%

R1234ze 44%

R227ea 3%

10 R32 17%

R134a 7%

wherein the percentages are by mass.

(b)

15 R125 18%

carbon dioxide 11%

R1234ze 44%

R227ea 7%

R32 17%

20 R134a 3%

wherein the percentages are by mass.

(c)

R125 18%

carbon dioxide 11%

25 R1234ze 44%

R227ea 6%

R32 17%

R134a 4%

30 10. A refrigerant composition, as claimed in claim 1 consisting essentially of one of the following compositions:

(a)

R125	1-30%
carbon dioxide	1-30%
R1234yf	35-70%
5 R227ea	1-10%
R32	1-30%

wherein the percentages are by mass and are selected from the ranges quoted to total 100%.

10 (b)

R125	5-30%
carbon dioxide	5-20%
R1234yf	35-70%
R227ea	4-10%
15 R32	5-30%

11. A refrigerant composition, as claimed in claim 1 consisting essentially of:

R125	7-25%
carbon dioxide	7-20%
20 R1234yf	58-69%
R227ea	5-10%
R32	7-25%

wherein the percentages are by mass and are selected from the ranges quoted to total 100%.

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12. A refrigerant composition, as claimed in claim 1 consisting essentially of:

R125	9.5%
carbon dioxide	8%
R1234yf	65%
30 R227ea	8%
R32	9.5%

wherein the percentages are by mass.

13. A refrigerant composition, as claimed in claim 13 consisting essentially of:

	R125	19%
	carbon dioxide	16%
5	R1234yf	41%
	R227ea	5%
	R32	19%

wherein the percentages are by mass and are selected from the ranges quoted to total 100%.

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14. A refrigerant composition, as claimed in claim 1 consisting essentially of:

	R125	19%
	carbon dioxide	16%
	R1234ze	20%
15	R1234yf	21%
	R227ea	5%
	R32	19%

wherein the percentages are by mass.

20 15 A refrigerant composition as claimed in Claim 1 consisting essentially of:

	carbon dioxide	1-35%
	an HFO selected from the group consisting of R1234yf, R1234ze(E) and mixtures thereof,	30-95%
	R32	1-30%
25	R125	1-30%
	R134a	1-30%
	R227ea	1-15%

wherein the percentages are by mass and are selected from the ranges quoted to total 100%.

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