

Refrigerants Environmental Data.

Ozone Depletion and Global Warming Potential.

Linde strongly advocates the use of refrigerant gases with zero ozone depletion potential and fully supports the phase out of HCFC's. Linde also advocates the use of lower global warming potential gases when they contribute to an overall reduction in the carbon footprint of refrigeration systems.

This table provides up to date internationally recognised data on the ozone depletion potential and global warming potential of the gases, as well as an easy reference summary of their impact.

Product information (sorted by Product Type and Name)

Type	Product R- Number	ODP ¹		GWP ²	
CFC	12	1	High	10900	High
	502	0,33	High	4657	High
HCFC	22	0,055	Medium	1810	Medium
	123	0,060	Medium	77	Low
	401A	0,033	Medium	1182	Medium
	401B	0,036	Medium	1288	Medium
	402A	0,019	Medium	2788	High
	402B	0,030	Medium	2416	Medium
	408A	0,024	Medium	3152	High
	409A	0,046	Medium	1909	Medium
HFC	23	0	Zero	14800	High
	32	0	Zero	675	Medium
	134a	0	Zero	1430	Medium
	404A	0	Zero	3922	High
	407A	0	Zero	2107	Medium
	407C	0	Zero	1774	Medium
	407F	0	Zero	2088	Medium
	417A	0	Zero	2346	Medium
	422A	0	Zero	3143	High
	422D	0	Zero	2729	High
	423A	0	Zero	2280	Medium
	424A	0	Zero	2440	Medium
	427A	0	Zero	2138	Medium
	428A	0	Zero	3607	High
	434A	0	Zero	3245	High
	437A	0	Zero	1805	Medium
	438A	0	Zero	2265	Medium
	442A	0	Zero	1888	Medium
	507A	0	Zero	3985	High
	508B	0	Zero	13396	High
M089	0	Zero	3805	High	
HFO	1234yf	0	Zero	4	Low
	1234ze	0	Zero	6	Low
Natural/Not in Kind	170	0	Zero	6	Low
	290	0	Zero	3	Low
	600a	0	Zero	3	Low
	717	0	Zero	0	Zero
	744	0	Zero	1	Low
	1150	0	Zero	4	Low
	1270	0	Zero	2	Low

ODP band

- Zero
- Medium
- High

Montreal Protocol Impact

- No restriction
- Subject to consumption phase down
- 100% global production & consumption ban

GWP band

- Less than 150
- 150–2500
- Greater than 2500

- Low
- Medium
- High

EU F-Gas 2 Impact³

- No controls
- Some supply restrictions and new equipment use bans
- Substantial supply and use restrictions and new equipment bans

¹ Ozone Depletion Potential, UNEP (2006). R11=1, ² Global Warming Potential (100 year), IPCC 4th Assessment Report, 2007. CO₂ = 1,

³ Regulations under negotiation. Most likely scenario at time of publication.

Product information (sorted by environmental impact)

Type	Product R- Number	ODP ¹		GWP ²	
Natural	717	0	Zero	0	Zero
Natural	744	0	Zero	1	Low
Natural	1270	0	Zero	2	Low
Natural	290	0	Zero	3	Low
Natural	600a	0	Zero	3	Low
Natural	1150	0	Zero	4	Low
HFO	1234yf	0	Zero	4	Low
HFO	1234ze	0	Zero	6	Low
Natural	170	0	Zero	6	Low
HFC	32	0	Zero	675	Medium
HFC	134a	0	Zero	1430	Medium
HFC	407C	0	Zero	1774	Medium
HFC	437A	0	Zero	1805	Medium
HFC	407F	0	Zero	1825	Medium
HFC	442A	0	Zero	1888	Medium
HFC	410A	0	Zero	2088	Medium
HFC	407A	0	Zero	2107	Medium
HFC	427A	0	Zero	2138	Medium
HFC	438A	0	Zero	2265	Medium
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ODP band

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- High 100% global production & consumption ban

GWP band

- Less than 150 Low
- 150–2500 Medium
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EU F-Gas 2 Impact³

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