

climalife

Catalogue 2011

Refrigeration . Air conditioning . Heating .
Renewable Energy



Dehon Group commitment



Listen & Satisfy

Our **customers** by taking care of their needs and by continuously improving our products and services.

By **gathering** information upstream regarding the needs and requirements of our customers and by taking it into account in our organisations.

By **conducting** customer satisfaction surveys and by formalizing customer visits through visit reports.

By **developing** services adapted to the customer's requirements.

By **improving** the communication between the group's companies.

Anticipate risks & Ensure Safety

Ensure the **safety** of our staff, our sites, our customers and suppliers (including carriers / forwarders) and aim for zero injury.

By **complying** with rules and regulations.

By **identifying** the risks related to our activities and by employing suitable safety measures.

By **using** preventative measures on work stations and backed up by relevant safety training courses.

Check & Confine

Minimize our impact on the **environment** and take the necessary steps to set our company on a sustainable development path.

By **controlling** our greenhouse gas emissions.

By **minimising** the impact of our waste and by developing recycling of our products.

By **optimizing** the traceability of our waste treatment.

We commit ourselves to put at your disposal the necessary resources for the implementation of these objectives. We ask all the staff to involve themselves to improve our organisations and fulfil customers expectations.

Pierre-Etienne Dehon
Chairman

Climalife; A key partner for energy performance

Developing innovative, sustainable solutions for climate control systems

For more than a century, Climalife has been Europe's specialist in cooling fluids for refrigeration and air conditioning. Its dynamism and commitment to quality and protecting the environment has also enabled it to gain cutting-edge expertise in the heating and renewable energy markets.

More than 100 employees are available to share their knowledge on diverse sectors such as; industrial markets, commercial markets (large outlets, local stores, etc.), housing and apartments, and the service sector (offices, hospitals, airports, ...).

They can meet your needs with a range of **products and services suitable for any climate control system**: refrigerants, secondary refrigerants/heat transfer fluids, lubricants, equipment, cleaning, brazing alloys, analysis, services.

Climalife benefits from the structure of the Dehon Group, **a key player in performance chemistry**, developing innovative solutions and building special partnerships with professionals, particularly producers, manufacturers, industrial firms, and distributors.

Innovative services developed for safety and the environment, regular technical and regulatory information, and high-performance tools complete this comprehensive plan.

Climalife offer their products and services worldwide, thanks to a global distribution network made up of 11 subsidiaries (Belgium, France, Germany, Hungary, Italy, Netherlands, Russia, Scandinavia, Spain, Switzerland, and United Kingdom) and an export subsidiary, Galco-Climalife, for the rest of the world.





Innovative, sustainable solutions for climate control systems

To develop a better understanding of our markets and to answer different customer requests more effectively, Climalife is now divided into two Business Units: **Industry & Commercial** and **Housing, Apartment buildings and the service sector**.

8 product and service ranges:



Refrigerants
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Cleaning
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**Secondary refrigerants/
Heat transfer fluids**
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Brazing alloys
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Lubricants
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Analysis
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Equipment
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Services
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FRIOPLUS®

Refrigerants

- Reclaimed HCFCs
- HFCs
- Ammonia
- Hydrocarbons
- Refrigerant replacement table
- Software and accessories
- Packaging characteristics
- Refrigerant fluid recovery
- Ammonia recovery
- Physico-chemical characteristics of fluids



Climalife Recommendations



Fluids applications	Climate control / Air conditioning	Commercial refrigeration
R-134a	•	•
R-404A		•
R-407C	•	
R-410A	•	
R-417A (ISCEON® MO59)	•	
R-422D (ISCEON® MO29)	•	•
R-422A (ISCEON® MO79)		•
R-427A (Forane® 427A)	•	•
R-507		

ISCEON® is a registered trademark of DuPont

Industrial refrigeration	Heat pump / Reversible climate control	Liquid chilling	Refrigerated transport
•		•	•
•			•
		•	
	•		
•	•	•	•
•			
•	•	•	•
•			

Refrigerants for retrofit of direct expansion systems running with R-22.

Refrigerants

Refrigerant gases intended for refrigeration and air conditioning



Definition of recycled product from CE regulation N° 1005/2009:

The reuse of a recovered controlled substance following a basic cleaning process. The placing on the market of recycled HCFCs for free or against payment is prohibited.

Definition of reclaimed product from CE regulation N° 1005/2009:

The reprocessing of a recovered controlled substance in order to meet equivalent performance of a virgin substance, taking into account its intended use. The placing on the market of reclaimed HCFCs for free or against payment is allowed until 31 December 2014.



Friostar®

R **HydroChloroFluoroCarbons:** Refrigerant fluids whose sale and use are regulated by European regulation 1005/2009 of 16 September 2009, because they deplete the ozone layer (Montréal Protocol). From 1 January 2010 to 31 December 2014, only the use of non-virgin HCFCs (recycled or reclaimed) is authorised.

Reclaimed HCFCs

Ref.	Products	Packaging	Charge	Comments
3962	R-22 T	Friopack®	10 kg	Ask us for other package sizes or reclaimed HCFCs.
127	R-22 T	Cylinder 52 L	50 kg	
7458	R-22 T	Drum 448 L	450 kg	
138	R-22 T	Drum 930 L	950 kg	
7454	R-408A T	Friopack®	10 kg	
7455	R-408A T	Cylinder 52 L	40 kg	
7444	R-409A T	Friopack®	12 kg	

Reclaiming Service: Climalife can reclaim for its customers, under conditions where a reclaimed product will remain in the customers ownership. The product will be regenerated in order to have the same performance as a virgin substance and will then be repackaged. See Services range on page 76.

Products, packaging and fill weights may vary by country. Contact your subsidiaries for more detailed information.



HFCs

Ref.	Products	Packaging	Charge	Comments
257	R-134a	Friocatch®	14 kg	
255	R-134a	Friostar®	20 kg	
251	R-134a	Cylinder 52 L	53 kg	
3247	R-134a	Drum 448 L	460 kg	Vertical container.
3249	R-134a	Drum 930 L	950 kg	
7445	R-227ea	Friocatch®	14 kg	
6731	R-227ea	Cylinder 27 L	31 kg	
4925	R-227ea	Cylinder 52 L	62 kg	
6618	R-236fa	Cylinder 12,5 L	10 kg	
7259	R-236fa	Cylinder 52 L	50 kg	
7246	R-404A	Cubikool	10 kg	
385	R-404A	Friostar®	15 kg	
7205	R-404A	Frioplus®	18 kg	
383	R-404A	Cylinder 52 L	40 kg	
3781	R-404A	Drum 448 L	350 kg	Vertical container.
3274	R-404A	Drum 930 L	740 kg	
7244	R-407C	Cubikool	11 kg	
350	R-407C	Friostar®	18 kg	
7245	R-407C	Frioplus®	20 kg	
348	R-407C	Cylinder 52 L	48 kg	
3647	R-407C	Drum 448 L	400 kg	Vertical container.
4501	R-407C	Drum 930 L	840 kg	
7242	R-410A	Cubikool	10 kg	
6821	R-410A	Friostar®	16 kg	
7243	R-410A	Frioplus®	17 kg	
4011	R-410A	Cylinder 52 L	40 kg	
6617	R-410A	Drum 448 L	360 kg	Vertical container.
7560	R-437A	Friocatch®	12 kg	
3663	R-507	Friostar®	15 kg	
468	R-507	Cylinder 52 L	40 kg	
3664	R-507	Drum 930 L	740 kg	
7466	R-427A	Friocatch®	12 kg	
7596	R-427A	Cylinder 52 L	48 kg	
7201	R-427A	Container 448 L	430 kg	
7202	R-427A	Container 930 L	850 kg	
5541	R-417A (ISCEON® MO59)	Friocatch®	14 kg	
5157	R-417A (ISCEON® MO59)	Cylinder 52 L	50 kg	
7006	R-422D (ISCEON® MO29)	Cylinder 9,25 L	8 kg	
6835	R-422D (ISCEON® MO29)	Friocatch®	12 kg	
6832	R-422D (ISCEON® MO29)	Cylinder 52 L	47 kg	
7091	R-422D (ISCEON® MO29)	Container 448 L	380 kg	
6834	R-422D (ISCEON® MO29)	Container 930 L	840 kg	

HFCs (HydroFluoroCarbons):

Nonflammable and non-toxic fluids whose placing on the market, use, recovery and destruction are restricted by EU regulation 842/2006 (F-Gas). These products do not affect the ozone layer and are recommended to replace CFCs and HCFCs.



Frioplus®



Friocatch®

Refrigerants

Refrigerant gases intended for refrigeration and air conditioning



867

Ammonia

NH₃ is an L2 (toxic and flammable) secondary refrigerant fluid. Its transport and use in installations are governed by regulations and security standards. The product supplied is a high quality one: qualifying HP 100. Purity: ≥ 99,99% weight, water content: ≥ 100 ppm weight.



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3602

HFCs (continued)

References	Products	Packaging	Charge	Comments
6842	R-422A (Isceon® MO79)	Friocatch®	12 kg	
6839	R-422A (Isceon® MO79)	Cylinder 52 L	45 kg	
7093	R-422A (Isceon® MO79)	Container 448 L	380 kg	
6841	R-422A (Isceon® MO79)	Container 930 L	818 kg	
• Low temperature application				
7517	Isceon® MO89	Friocatch®	10 kg	
5673	Isceon® MO89	Cylinder 52 L	37 kg	
4058	R-508B	Cylinder 1,34 L	1 kg	} Ask us.
4060	R-508B	Cylinder 6,7 L	6 kg	
4061	R-508B	Cylinder 13,4 L	12 kg	
155	R-23	Cylinder 6,7 L	5 kg	
157	R-23	Cylinder 13,4 L	12 kg	
160	R-23	Cylinder 50 L	47 kg	
7516	FX 80	Friocatch®	11 kg	
4122	Standard refrigerant			Combination of calibrated refrigerants. Compliance certificate.

Ammonia

References	Products	Packaging	Charge	Comments
867	Ammonia	Cylinder 88 L	45 kg	Without dip tube.
868	Ammonia	Cylinder 88 L	45 kg	With dip tube.
869	Ammonia	Conteneur 930 L	480 kg	

Hydrocarbons

References	Products	Packaging	Charge	Comments
6732	Propane R-290	Aerosol	390 g	To be used with prestovalve.
6741	Propane R-290	Cylinder 27 L	10 kg	
3602	Isobutane R-600a	Aerosol	420 g	To be used with prestovalve.
6755	Isobutane R-600a	Cylinder 27 L	12 kg	
1479	Prestovalve	Box of 2		

The cleaning of refrigerant circuits:

For internal cleaning, see page 52: Facilisolv, GC1.

Analysis in Climalife Laboratory

Climalife offers a specific analysis range in order to help you with the maintenance of your installations (see on page 68).

Products, packaging and fill weights may vary by country. Contact your subsidiaries for more detailed information.

1479



Possible replacement refrigerant according to applications

CFCs	HCFCs	HFCs - NH ₃
R-12	R-401A / R-401B R-409A	R-134a R-437A
	R-22 Air-conditioning application	R-134a R-407C R-410A R-417A R-422D R-427A
	R-22 Refrigeration application	R-134a R-404A / R-507 R-422D R-427A NH ₃
R-114	R-124	R-227ea / R-236fa / R-245fa
R-500	R-401B R-409B	
R-502	R-408A R-402A / R-402B R-403B	R-404A / R-507 R-422A
R-13B1		FX 80 ISCEON® MO89
R-13 R-503		R-23 R-508B



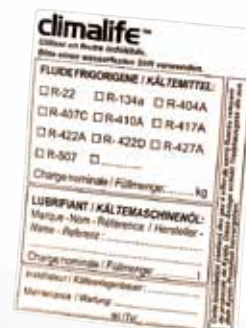
4068

Software, accessories

References	Products	Packaging	Comments
5823 339 3746	Refrich@rge Thermofluid Software programme refrigerant load losses		Calculates the charge of installations. Calculates thermodynamic cycles. Calculates charge loss.
4068	Climalife refrigerants comparator	Piece	
6446	Training Kit	Piece	Includes 1 blue book, 1 comparator and thermodynamic diagrams.
7041	Blue Handbook	Piece	Thermodynamic data.
7351	Installation labels	Batch of 25	Labelling required on new equipment by EU regulation 842-2006.



7041



7351

Refrigerants

Refrigerant gases intended for refrigeration and air conditioning



Packaging characteristics

Packaging	Packaging material	Test pressure	Capacity (L)	Tare (kg)	Diameter (mm)	Height (mm)	Exit valves	Valve material	Number per pallet
Cubikool™	Lightened steel + Polypropylene	42	12,5	6	310 x 310	400	Male 21.8 x 1.814 on right	Brass	24
Frioplus®	Lightened steel + Polypropylene	42	22	8,5	305	543	Male 21.8 x 1.814 on right	Brass	16
Friostar®	Alu	31	20	7	300	530	Male 21.8 x 1.814 on right	Brass	11, 16 or 24
Friostar®	Alu	36	20	7	300	530	Male 21.8 x 1.814 on right	Brass	
Friostar®	Alu	48	20	7,3	300	530	Male 21.8 x 1.814 on right	Brass	
Cylinder 9,25 L	Steel	47	9,25	7,2	245	276	Male 21.8 x 1.814 on right	Brass	14
Cylinder 12 L	Steel	47	12,3	7,6	229	505	Male 21.8 x 1.814 on right	Brass	15, 25 or 40
Friopack®	Steel	29,5	12,5	7	300	310	Male 1/4 SAE on right	Brass	30 or 45
Cylinder 27 L	Steel	33	27	14,5	300	625	Male 21.8 x 1.814 on right	Brass	11, 12 or 16
Cylinder 27 L	Steel	45	27	16	300	631	Male 21.8 x 1.814 on right	Brass	
Cylinder 27 L	Steel	46,5	27	16	300	606	Male 21.8 x 1.814 on right	Brass	
Cylinder 52 L	Steel	45	52	29,5	267	1195	Male 21.8 x 1.814 on right	Brass	16
Cylinder 88 L	Steel	33	88	38	300	1525	Male 21.8 x 1.814 on right	Brass	12
Cylinder 88 L	Steel	46,5	88	40	300	1525	Male 21.8 x 1.814 on right	Brass	
Cylinder NH₃	Steel	46,5	88	40	300	1525	Male 21.8 x 1.814 on right	Steel	12
Drum 448 L	Steel	42	448	450	800	1565	Male 26.1 x 1.814 on right	Brass	
Drum 615 L	Steel	42	615	380	800	1600	Male 26.1 x 1.814 on right	Brass	
Drum 930 L	Steel	33	930	440	800	2330	Male 26.1 x 1.814 on right	Brass	
Drum 930 L	Steel	42	930	470	800	2330	Male 26.1 x 1.814 on right	Brass	
Drum 930 L	Steel	48	930	590	800	2330	Male 26.1 x 1.814 on right	Brass	

Non-contractual information.

Products, packaging and fill weights may vary by country. Contact your subsidiary for more detailed information.

Refrigerant fluid recovery

References	Products	Packaging	Pressure	Comments
• Implementation and use				
793	Recovery barrel	217 L		
Packaging designed for halogenated refrigerants to be regenerated or destroyed.				
6566	Recovery cylinder	12 L	45 bars	For all Low or middle pressure halogenated refrigerants.
796	Recovery cylinder	27 L	33 bars	For R-22.
6246	Recovery cylinder	27 L	45 bars	For all low or middle pressure halogenated refrigerants.
799	Recovery cylinder	88 L	33 bars	For R-22.
6248	Recovery cylinder	88 L	45 bars	For all low or middle pressure halogenated refrigerants.
795	Recovery cylinder	13,4 L	200 bars	For high pressure refrigerants: R-13, R-23, R-503.
801	Recovery drum	930 L		
Our temporary storage (Receiver) cylinders are cleaned and vacuumed to avoid refrigerant contamination. Thus, the refrigerant will be recharged into the installation without any contamination problems.				
6565	Temporary storage cylinder	12 L	45 bars	For temporarily evacuating a system before reintroducing fluids.
750	Temporary storage cylinder	27 L	33 bars	
6245	Temporary storage cylinder	27 L	45 bars	
752	Temporary storage cylinder	88 L	33 bars	
6247	Temporary storage cylinder	88 L	45 bars	
754	Temporary storage drum	930 L		

Ammonia recovery

References	Products	Packaging
• Implementation and use		
757	Ammonia recovery cylinder	88 L
758	Ammonia recovery container	930 L

See our services range.

Regeneration HCFCs/HFCs

Reclamation Service: Climalife can reclaim for its customers, under conditions where a reclaimed product will remain in the customers ownership. The product will be regenerated in order to have the same performance as a virgin substance and will then be repackaged. See Services range on page 76.



In Europe, it is compulsory to recover CFCs, HCFCs and HFCs from installations of any weight under European regulation 842-2006 or 1005-2009.

These must be returned with appropriate waste documentation as required in each country.



6566



793



796

Refrigerants

Refrigerant gases intended for refrigeration and air conditioning



HFCs physico chemical properties *

	Units	Forane® 23	R-125	R-134a	R-152a	R-227ea	R-236fa	R-404A	R-407C
Composition		CHF ₃	CHF ₂ -CF ₃	CH ₂ F-CF ₃	CH ₃ -CHF ₂	CF ₃ -CHF-CF ₃	CF ₃ CH ₂ CF ₃	44% R-125, 52% R-143a, 4% R-134a	23% R-32, 25% R-125, 52% R-134a
Boiling point (under 1,013 bar)	°C	-82	-48,09	-26,08	-24,03	-16,35	-1,44	-46,23	-43,63
Temperature glide under 1,013 bar	K	0	0	0	0	0	0	0,75	7
Density of liquid at 25°C	kg/m ³	680,09	1189,35	1206,71	899,5	1387,67	1359,8	1044	1137,5
Density of saturating vapour at normal boiling point	kg/m ³	4,662	6,788	5,257	3,375	8,484	7,14	5,48	4,63
Saturation pressure (Liquid sat.)									
25°C	bar	49,986	13,78	6,654	5,964	4,55	2,72	12,55	11,9
50°C			25,37	13,18	11,77	9,16	5,84	23,11	22,16
Critical temperature	°C	26,14	66,02	101,06	113,26	101,75	124,92	72,05	86,03
Critical pressure	bar absolute	48,32	36,18	40,59	45,17	29,25	32	37,29	46,29
Critical density	kg/m ³	526,5	573,58	511,9	368	594,25	551,29	486,54	484,2
Latent vapourisation heat at normal boiling point	kJ/kg	239,4	164,11	216,97	329,9	131,77	160,32	200,94	249,8
Specific heat at 25°C									
Liquid	kJ/(kg.K)	18,87	1,407	1,425	1,8	1,182	1,26	1,542	1,535
Vapor under 1,013 bar		0,737	0,797	0,8512	1,051	0,813	0,839	0,877	0,837
Cp/Cv ratio at 25°C under 1,013 bar		1,201	1,104	1,119	1,155	1,075	1,083	1,118	1,144
NF-EN 378 classification		L1	L1	L1	L2	L1	L1	L1	L1
ODP	(R11 = 1)	0	0	0	0	0	0	0	0
GWP	(CO ₂ = 1)	14800	3500	1430	124	3220	9810	3220	1774

HFCs physico chemical properties *

	Units	R-507	R-508B	Forane® FX80	ISCEON® MO89
Composition		50% R-125, 50% R-143a	46% R-23, 54% R-116	32% R-32, 68% R-125	86% R-125, 9% R-218, 5% R-290
Boiling point (under 1,013 bar)	°C	-46,75	-87,6	-50,9	-53,41
Temperature glide under 1,013 bar	K	0	0,44	0,21	3,06
Density of liquid at 25°C	kg/m ³	1047,9	at -30°C 1234,4	1101,8	1082,5
Density of saturating vapour at normal boiling point	kg/m ³	5,585	6,548	4,85	6,507
Saturation pressure (Liquid sat.)					
25°C	bar	12,83	-	16,09	15,28
50°C		23,61	-	29,74	27,52
Critical temperature	°C	70,62	11,21	69,46	64,18
Critical pressure	bar absolute	37,05	37,72	45,55	37,35
Critical density	kg/m ³	490,77	568,45	496,92	535,33
Latent vapourisation heat at normal boiling point	kJ/kg	196,94	165,36	234,38	170,42
Specific heat at 25°C					
Liquid	kJ/(kg.K)	1,539	-	1,613	1,501
Vapor under 1,013 bar		0,87	0,7567	0,814	0,84
Cp/Cv ratio at 25°C under 1,013 bar		1,117	1,136	1,149	1,103
NF-EN 378 classification		L1	L1	L1	L1
ODP	(R11 = 1)	0	0	0	0
GWP	(CO ₂ = 1)	3985	13996	3168	3806

All elements are simulated using Refrop 8 and given purely as an indication.

HFCs physico chemical properties *

	Units	R-410A	R-413A	R-417A	R-422A	R-422D	R-427A	R-437A
Composition		50% R-32, 50% R-125	9% R-218, 88% R-134a, 3% R-600a	46,6% R-125, 50% R-134a, 3,4% R-600	85,1% R-125, 11,5% R-134a 3,4% R-600a	65,1% R-125, 31,5% R-134a, 3,4% R-600a	50% R-134a, 25% R-125, 15% R-32, 10% R-143a	78,5% R-134a, 19,5% R-125 0,06% R-601
Boiling point (under 1,013 bar)	°C	-51,45	-33,4	-39,07	-46,5	-43,2	-46,55	-32,33
Temperature glide under 1,013 bar	K	0,08	5,33	4,99	2,46	4,86	6,75	4,27
Density of liquid at 25°C	kg/m ³	1058,6	1157,8	1151,3	1135,6	1143,44	1124,98	1177,74
Density of saturating vapour at normal boiling point	kg/m ³	4,173	5,399	5,685	6,317	5,954	4,78	5,382
Saturation pressure (Liquid sat.)								
25°C	bar	16,57	7,82	9,83	12,75	11,28	11,43	7,94
50°C		30,71	14,91	18,44	23,42	20,89	21,25	15,26
Critical temperature	°C	71,35	96,58	87,13	71,72	79,6	85,32	96,26
Critical pressure	bar absolute	49	40,22	40,35	37,46	39,05	43,91	40,86
Critical density	kg/m ³	459,53	510,87	520,6	538,71	529,14	689,97	512,43
Latent vapourisation heat at normal boiling point	kJ/kg	272,97	213,12	200,75	177,04	190,05	236,52	213,13
Specific heat at 25°C								
Liquid	kJ/(kg.K)	7,708	1,441	1,444	1,446	1,443	1,517	1,436
Vapor under 1,013 bar		0,823	0,871	0,855	0,833	0,844	0,847	0,858
Cp/Cv ratio at 25°C under 1,013 bar		1,176	1,114	1,111	1,105	1,108	1,131	1,116
NF-EN 378 classification		L1	L2	L1	L1	L1	L1	L1
ODP	(R11 = 1)	0	0	0	0	0	0	0
GWP	(CO ₂ = 1)	2088	2054	2347	3144	2730	2138	1805

HCFCs physico chemical properties *

	Units	R-22	R-408A	R-409A
Composition		CHF ₂ Cl	7% R-125, 46% R-143a, 47% R-22	60% R-22, 25% R-124, 15% R-142b
Boiling point (under 1,013 bar)	°C	-40,82	-44,58	-34,45
Temperature glide under 1,013 bar	K	0	0,46	8,49
Density of liquid at 25°C	kg/m ³	1190,7	1059,5	1213,7
Density of saturating vapour at normal boiling point	kg/m ³	4,704	4,83	4,98
Saturation pressure (Liquid sat.)				
25°C	bar	10,44	11,67	8,02
50°C		19,43	21,47	14,98
Critical temperature	°C	96,15	83,24	109,26
Critical pressure	bar absolute	49,9	42,95	46,99
Critical density	kg/m ³	523,8	485,1	508,9
Latent vapourisation heat at normal boiling point	kJ/kg	233,7	225,78	222,51
Specific heat at 25°C				
Liquid	kJ/(kg.K)	1,257	1,448	1,23
Vapor under 1,013 bar		0,662	0,8	0,7095
Cp/Cv ratio at 25°C under 1,013 bar		1,185	1,148	1,151
NF-EN 378 classification		L1	L1	L1
ODP	(R11 = 1)	0,055	0,026	0,033
GWP	(CO ₂ = 1)	1810	2906	1584



Cubikool™



Secondary refrigerant fluids

Heat transfer fluids

- Secondary refrigerant fluids
- Heat transfer fluids
- Cold storage
- Ice slurries
- Treatment and Additives
- Loading on a pallet



Climalife

Recommendations



	Alcali	Temper [®]	Neutragel [®] Neo	Thermera [®] R
Base	NH ₃	Acetate and potassium formiate	MEG	Betaine
Applications	Industrial usage. Requires an understanding of installations which use NH ₃ .	Used at low temperatures in refrigeration and freezing systems, GMS, ice rinks, ski slopes, boats...	Used in industrial refrigeration and air conditioning systems.	Used in the food, agriculture and commercial refrigeration industries.
Advantages	Can be used at very low temperatures.	Good biodegradability.	Embittering agent.	The most environmentally friendly heat transfer fluid in the Climalife range. Sugar Beet derivative based.
	Viscosity < MPGs and MEGs.	Organic inhibitors: long-lasting protection against corrosion. Lower charge loss than glycol-based products.	Organic inhibitors which protect against oxidation, limescale and rust. Viscosity < MPG.	Traditional inhibitors. Viscosity < MPG.
		Lowest exchange surface.	Exchange surface < MPG, which means that it is cheaper to invest in. Pump size < MPG based.	
	No nitrites, nitrates, phosphates, amines, silicates or borates.	No phosphates, nitrites, amines or borates.	No phosphates, nitrites, amines or borates.	No nitrites, amines or silicates or borates.
Working temperature range	From -50°C to +40°C	From -50°C to +70°C	From -33°C to +180°C	From -20°C to +65°C
Freezing point*	- 55°C	- 55°C	- 37°C*	- 35°C

Friogel® Neo	Neutranguard® Neo	Solufluid®	Greenway®	Thermera® AC
MPG	MPG	MPG	BIO propane-diol	Betaine
Used in the food and agriculture industries.	Used in water-based central heating circuits, installations with solar panels, underfloor heating & cooling systems and geothermal systems.	Specifically used for thermal solar systems (Solufluid® SOLAR), heat pumps (Solufluid® HEAT PUMP) and traditional heating and refrigeration systems (Solufluid®).	Specifically used for thermal solar systems (Greenway® SOLAR), heat pumps (Greenway® HEAT PUMP) and traditional heating and refrigeration systems (Greenway®).	Used for heat transfer in heating, ventilation and air conditioning systems.
Approved by the French General Health Department**.	Approved by the French General Health Department**.	Approved by the French General Health Department**.	Approved by the French General Health Department**.	The most environmentally friendly heat transfer fluid in the Climalife range. Sugar beet derivative based.
Organic inhibitors which protect against oxidation, limescale and rust.	Organic inhibitors which protect against oxidation, limescale and rust.	Long life organic corrosion inhibitors.	Long life organic corrosion inhibitors.	Traditional inhibitors.
Quantity in circulation < with MEGs.	Quantity in circulation < with MEGs.	Formulae developed for ready to use specific applications.	Formulae developed for ready to use specific applications.	Viscosity < MPG.
No phosphates, nitrites amines or borates.	No phosphates, nitrites, amines or borates.	No phosphates, nitrites, amines or borates.	No phosphates, nitrites, amines or borates.	No nitrites, amines, silicates or borates.
From -28°C to +150°C	From -28°C to +180°C	From -20°C to +200°C	From -25°C to +200°C	From -10°C to +65°C
- 32°C*	- 32°C*	- 25°C	- 30°C	- 15°C

*Where the heat transfer fluid is sold in a form which needs to be diluted, the freezing point shown refers to a dilution of 50%.

**Approved by the French General Health Department as a heat transfer fluid for use in simple exchange hot sanitary water treatment.

Heat transfer fluids

Fluids dedicated to heat transfer



Secondary refrigerant fluids

Products designed for industrial and commercial refrigeration purposes.



R The Climalife range of heat transfer fluids has changed, and no longer includes Borax. Although the previous range only contained a very small quantity (not enough to warrant a label), Climalife decided to completely remove it from its formulations. Its new range is approved by the French General Health Department for heat treatment as a simple exchange of water intended for human consumption.



7479

Friogel® Neo

Monopropylene glycol based product with organic corrosion inhibitors for low temperature refrigeration installations. Formulation approved by the French General Health Department (French Superior Council for Public Hygiene) as a heat transfer fluid for single exchange sanitary water production systems. When diluted in water, Friogel® Neo provides excellent protection against frost and corrosion of the metals present in the installation. (Regulation DGS/SD7A N°490 of 25/11/2009).

It is recommended to use at least 33% concentration v/v of Friogel® Neo in order to ensure optimum anti-corrosion protection. The inhibitors incorporated into Friogel® Neo provide excellent protection against limescale, rust and oxidants for the metals present in the installation.

Glycol and dilutions

Ref.	Products	Freezing point	% Concentration vol.	Packaging
• Concentrated MPG				
7479	Friogel® Neo	To be diluted.		Can 20 L
7480	Friogel® Neo			Drum 60 L
7481	Friogel® Neo			Drum 210 L
7482	Friogel® Neo			Container 1000 kg
7483	Friogel® Neo			Bulk 10 t
7484	Friogel® Neo			Bulk 20 t
• Ready-to-use MPG				
7485	Friogel® Neo	- 20°C	38%	Drum 210 L <i>Availability guaranteed</i>
7486	Friogel® Neo	- 20°C		Container 1000 kg
7487	Friogel® Neo	- 20°C		Bulk 5 t
7488	Friogel® Neo	- 20°C		Bulk 10 t
7489	Friogel® Neo	- 20°C		Bulk 20 t
• Other possible dilutions				
7490	Friogel® Neo	- 13°C	30%	Drum 210 L*
7491	Friogel® Neo	- 13°C		Container 1000 kg
7492	Friogel® Neo	- 13°C		Bulk 5 t
7493	Friogel® Neo	- 13°C		Bulk 10 t
7494	Friogel® Neo	- 13°C		Bulk 20 t
7495	Friogel® Neo	- 18°C	36%	Drum 210 L*
7496	Friogel® Neo	- 18°C		Container 1000 kg
7497	Friogel® Neo	- 18°C		Bulk 5 t
7498	Friogel® Neo	- 18°C		Bulk 10 t
7499	Friogel® Neo	- 18°C		Bulk 20 t
7500	Friogel® Neo	- 23°C	42%	Drum 210 L*
7501	Friogel® Neo	- 23°C		Container 1000 kg
7502	Friogel® Neo	- 23°C		Bulk 5 t
7503	Friogel® Neo	- 23°C		Bulk 10 t
7504	Friogel® Neo	- 23°C		Bulk 20 t
7505	Friogel® Neo	- 29°C	47%	Drum 210 L*
7506	Friogel® Neo	- 29°C		Container 1000 kg
7507	Friogel® Neo	- 29°C		Bulk 5 t
7508	Friogel® Neo	- 29°C		Bulk 10 t
7509	Friogel® Neo	- 29°C		Bulk 20 t
7510	Friogel® Neo	- 34°C	52%	Drum 210 L*
7511	Friogel® Neo	- 34°C		Container 1000 kg
7512	Friogel® Neo	- 34°C		Bulk 5 t
7513	Friogel® Neo	- 34°C		Bulk 10 t
7514	Friogel® Neo	- 34°C		Bulk 20 t

*Minimum order quantity of 7,000 litres for Friogel® Neo diluted in 210 litres - except for Friogel® Neo - 20° C. Products, packaging and fill weights may vary by country. Contact your subsidiary for more detailed information.

Glycol and dilutions (continued)

Ref.	Products	Freezing point	% Concentration vol.	Packaging
• Concentrated MEG				
7518	Neutragel® Neo	To be diluted		Can 20 L
7519	Neutragel® Neo			Drum 60 L
7520	Neutragel® Neo			Drum 210 L
7521	Neutragel® Neo			Container 1000 kg
7522	Neutragel® Neo			Bulk 10 t
7523	Neutragel® Neo			Bulk 20 t
• Ready-to-use MEG				
7524	Neutragel® Neo	- 20°C	35%	Drum 210 L <i>Availability guaranteed</i>
7525	Neutragel® Neo	- 20°C		Container 1000 kg
7526	Neutragel® Neo	- 20°C		Bulk 5 t
7527	Neutragel® Neo	- 20°C		Bulk 10 t
7528	Neutragel® Neo	- 20°C		Bulk 20 t
• Other possible dilutions				
7529	Neutragel® Neo	- 13°C	26%	Drum 210 L*
7530	Neutragel® Neo	- 13°C		Container 1000 kg
7531	Neutragel® Neo	- 13°C		Bulk 5 t
7532	Neutragel® Neo	- 13°C		Bulk 10 t
7533	Neutragel® Neo	- 13°C		Bulk 20 t
7534	Neutragel® Neo	- 16°C	30%	Drum 210 L*
7535	Neutragel® Neo	- 16°C		Container 1000 kg
7536	Neutragel® Neo	- 16°C		Bulk 5 t
7537	Neutragel® Neo	- 16°C		Bulk 10 t
7538	Neutragel® Neo	- 16°C		Bulk 20 t
7539	Neutragel® Neo	- 27°C	42%	Drum 210 L*
7540	Neutragel® Neo	- 27°C		Container 1000 kg
7541	Neutragel® Neo	- 27°C		Bulk 5 t
7542	Neutragel® Neo	- 27°C		Bulk 10 t
7543	Neutragel® Neo	- 27°C		Bulk 20 t
7544	Neutragel® Neo	- 32°C	47%	Drum 210 L*
7545	Neutragel® Neo	- 32°C		Container 1000 kg
7546	Neutragel® Neo	- 32°C		Bulk 5 t
7547	Neutragel® Neo	- 32°C		Bulk 10 t
7548	Neutragel® Neo	- 32°C		Bulk 20 t
7549	Neutragel® Neo	- 39°C	52%	Drum 210 L*
7550	Neutragel® Neo	- 39°C		Container 1000 kg
7551	Neutragel® Neo	- 39°C		Bulk 5 t
7552	Neutragel® Neo	- 39°C		Bulk 10 t
7553	Neutragel® Neo	- 39°C		Bulk 20 t



7518

Neutragel® Neo

Monoethylene glycol based product with organic corrosion inhibitors for low temperature industrial refrigeration installations. The extent to which it should be diluted in demineralised water depends on the protection temperature required. It is recommended to use at least a 33% concentration v/v of Neutragel® Neo in order to ensure optimum anti-corrosion protection. The inhibitors which have been incorporated into Neutragel® Neo provide excellent protection against limescale, rust and oxidants for the metals present in the installation.



7481



7520

*Minimum order quantity of 7,000 litres for Neutragel® Neo diluted in 210 litres - except for Neutragel® Neo -20°C.

Heat transfer fluids

Fluids dedicated to heat transfer



Temper®

Acetate and potassium formate based product, supplied ready to use. Its viscosity at low temperatures makes it the perfect product for low temperature industrial processes. It is non-flammable with low toxicity, and compatible with a wide range of materials.



4724

Thermera® R

Betaine based product supplied ready to use in refrigeration installations. Non-toxic and environmentally friendly. Suitable for a wide range of applications, especially in those sectors where health and environmental considerations are of particular importance.



6680

Alcali

Demineralsed water and NH₃ based product, supplied ready to use in low temperature refrigeration installations. Must not be used with metals containing copper, galvanised steel or aluminium.



4710



6326

New generation secondary refrigerant fluids

Ref.	Products	Freezing point	Packaging
• Temper®			
4703	Temper®	- 10°C	Can 25 L
4701	Temper®	- 10°C	Drum 208 L
4700	Temper®	- 10°C	Container 1000 L
4710	Temper®	- 20°C	Can 25 L
4708	Temper®	- 20°C	Drum 208 L
4707	Temper®	- 20°C	Container 1000 L
4717	Temper®	- 30°C	Can 25 L
4715	Temper®	- 30°C	Drum 208 L
4714	Temper®	- 30°C	Container 1000 L
4724	Temper®	- 40°C	Can 25 L
4722	Temper®	- 40°C	Drum 208 L
4721	Temper®	- 40°C	Container 1000 L
4731	Temper®	- 55°C	Can 25 L
4729	Temper®	- 55°C	Drum 208 L
4728	Temper®	- 55°C	Container 1000 L
<i>5 ton, 10 ton and 20 ton barrels in all the freezing points shown above available upon request.</i>			
• Thermera® R			
6680	Thermera® R	- 35°C	Can 20 L
6679	Thermera® R	- 35°C	Drum 200 L
6678	Thermera® R	- 35°C	Container 1000 L
• Alcali			
6326	Alcali 17,5%	- 28°C	Drum 170 kg
5627	Alcali 17,5%	- 28°C	Container 800 kg
6762	Alcali 17,5%	- 28°C	Bulk
6039	Alcali 25%	- 55°C	Drum 170 kg
6038	Alcali 25%	- 55°C	Container 800 kg
6767	Alcali 25%	- 55°C	Bulk

Ask us about barrels for these dilutions.

Heat transfer fluids

Products designed for heating and air conditioning installations as well as for new renewable energy technologies such as solar panels and geothermal systems.

Glycol and dilutions

Ref.	Products	Freezing point	Packaging	Comments
• Concentrated MPG				
7569	Neutranguard® Neo	To be diluted	Can 20 L	To be diluted for central heating circuits, both of old and recent design. Formula approved by numerous hot static and dynamic tests. After dilution, Neutranguard® Neo makes it possible to obtain excellent protection from freezing and strengthened protection from corrosion. It is recommended to use at least 33% concentration v/v of Neutranguard® Neo in order to ensure optimal anti-corrosion protection.
7570	Neutranguard® Neo		Drum 60 L	
7571	Neutranguard® Neo		Drum 210 L	
7572	Neutranguard® Neo		Container 1000 kg	
• Ready-to-use MPG				
7581	Solufluid® Solar	- 25°C	Can 20 L	Ready to use for thermal solar systems (flat or tubular sensors in vacuum). Ensures efficient heat transfer, effectively protects the metals present in the circuit from freezing (-25°C) and corrosion. Gives stability and is a proven fluid at high temperatures for withstanding summertime stagnation periods.
7582	Solufluid® Solar	- 25°C	Drum 60 L	
7583	Solufluid® Solar	- 25°C	Drum 210 L	
7577	Solufluid® Heat Pump	- 25°C	Can 20 L	Ready to use for circuits of sensors in geothermal or aérothermal applications. Ensures efficient heat transfer, effectively protects the ground and circuits from corrosion and freezing (-25°C).
7578	Solufluid® Heat Pump	- 25°C	Drum 60 L	
7579	Solufluid® Heat Pump	- 25°C	Drum 210 L	
7573	Solufluid®	- 25°C	Can 20 L	Ready to use for specific use in sprinkler installations, underfloor heating/cooling and refrigeration or heat-transfer circuits.
7574	Solufluid®	- 25°C	Drum 60 L	
7575	Solufluid®	- 25°C	Drum 210 L	
• Concentrated MEG				
7518	Neutrangel® Neo	To be diluted	Can 20 L	Monoethylene glycol based product with corrosion inhibitors, to dilute for heat circuits and air-conditioning (See page 23). It is recommended at least 33% concentration v/v of Neutrangel® Neo in order to ensure optimal anti-corrosion protection.
7519	Neutrangel® Neo		Drum 60 L	
7520	Neutrangel® Neo		Drum 210 L	



R

The Climalife range of heat transfer fluids has changed, and no longer includes Borax. Although the previous range only contained a very small quantity (not enough to warrant a label), Climalife decided to completely remove it from its formulations. Its new range is approved by the French General Health Department for heat treatment as a simple exchange of water intended for human consumption.

7573



7581



7577



7569



Heat transfer fluids

Fluids dedicated to heat transfer



7588

Greenway

Ready to use range based on 1,3 Propanediol (BIO PDO), of fully plant-based origin. Suitable for heating, renewable energy and refrigeration applications. Products approved by the French General Health Department for heat treatment as a simple exchange of water intended for human consumption. The BIO PDO lifecycle saves, over the entire chain (production to waste treatment), 40% of greenhouse gas emissions and primary energy consumption compared to that of MPG. Fully biodegradable product.

New generation heat transfer fluids

Ref.	Products	Freezing point	Packaging	Comments
• Greenway® 1,3-Propanediol				
7588	Greenway® Solar	- 30°C	Can 20 l	Ready to use for thermal solar systems (flat or tubular sensors in vacuum). Ensures efficient heat transfer, effectively protects the metals present in the circuit from freezing (-30°C) and corrosion. Very low degradability: at 150°C for 150 hours, it degrades 3 times slower than MPG (at equivalent dilution) which guarantees a long lifespan.
7589	Greenway® Solar	- 30°C	Drum 60 l	
7590	Greenway® Solar	- 30°C	Drum 210 l	
• Greenway® Heat Pump				
7591	Greenway® Heat Pump	- 30°C	Can 20 l	Ready to use 1,3 Propane-diol. Of fully plant-based origin, for sensor circuits in geothermal or aerothermal applications. Ensures efficient heat transfer, and effectively protects the circuits from freezing (-30°C).
7592	Greenway® Heat Pump	- 30°C	Drum 60 l	
7593	Greenway® Heat Pump	- 30°C	Drum 210 l	
• Greenway®				
7585	Greenway®	- 30°C	Can 20 l	Ready to use for sprinkler installations, underfloor heating/cooling and refrigeration or heat-transfer circuits and air-conditioning systems. At -20°C, it is three times less viscous than MPG at equivalent dilution.
7586	Greenway®	- 30°C	Drum 60 l	
7587	Greenway®	- 30°C	Drum 210 l	
7594	Greenway®	- 30°C	Bulk	
<i>Contact us for other freezing points.</i>				
• Thermera® AC Betaine				
6677	Thermera® AC	- 15°C	Can 20 l	Ready to use in air conditioning systems. Non-toxic and environmentally friendly. Water and betaine based. Suitable for a very wide range of applications, and especially suited to those sectors where health and environmental issues are of particular importance.
6676	Thermera® AC	- 15°C	Drum 200 l	
6675	Thermera® AC	- 15°C	Container 1000 l	

Contact us for other freezing points.

Cold storage - Eutectics

Ref.	Products	Packaging	Comments
1838	Sogeltic E-13	Drum 230 kg	Ready to use saline solutions with defrosting trays for fixed temperatures. Mainly used for filling storage trays. No need to dilute.
1840	Sogeltic E-18	Drum 230 kg	

Minimum order quantity 7,000 kg.

Ice slurries

Ref.	Products	Freezing point	Packaging	Comments
7019	Frigagel Neo	- 5°C	Container 1000 kg	Frigagel is a ready to use MPG based product containing corrosion inhibitors to effectively protect ice slurry distribution systems. Helps to avoid temperature variations, particularly during de-icing, and are economical in terms of energy used.
7020	Frigagel Neo	- 5°C	Bulk	

Minimum order quantity 7,000 kg.



1838



6677

Treatment and Additives

Ref.	Products	Packaging	Comments
6089	Fluorescent F	Can 1 L	Detects leaks with fluorescence in systems using heat transfer fluids. 1 litre of Fluorescent F will treat 10 m ³ of an installation.
6583	Bio 100	Can 1 kg	Bactericide and fungicide agent for heat transfer fluids. Use a concentration of between 0.02% and 0.05% depending on the level of bacterial contamination. 1 litre of BIO 100 will treat up to 5 m ³ of installation.
6090	Anti-foam M	Can 1 L	Eliminates foam in systems using heat transfer fluids. 1 litre of Antifoam M will treat up to 10 m ³ of MEG or MPG based heat transfer fluid.



6583

See our cleaning range for heat transfer fluid and secondary refrigerant system cleaning.

Loading on a pallet

Product	Packaging	Number per pallet
Friogel® Neo	Can 20 L Drum 60 L Drum 210 L	28 9 4
Neutragel® Neo		
Neutraguard® Neo		
Solufuid®		
Greenway®		
Frigagel® Neo	Drum 210 L	4
Alcali	Drum 170 kg	4
Temper®	Can 25 L	12
	Drum 208 L	4
Thermera®	Can 20 L	12
	Drum 200 L	4
Sogeltic	Drum 230 kg	4

Non-contractual information.



6090





Lubricants

- Mineral oils
- Semi-synthetic oils
- Synthetic oils
 - Alkyl benzenes (AB)
 - Poly alpha olefins (PAO)
 - Polyol esters (POE)
- Usage
- Packing on a pallet



Climalife

Recommendations



Family of oils	Origins	Sub-category	ISO 20	ISO 32
Mineral	Natural, formed during distillation of crude oil.	Naphthenic Paraffinic. Same nature and provenance as petrol. (M)		Mobil Arctic 155 Suniso 3 GS
Semi-synthetic	Mixture of mineral and synthetic oils			Bitzer B 5.2 (AB+MN) Shell Clavus SD 2212 (38 cSt) (AB + MN)
Synthetic	Chemical	Alkyl benzene (AB)		Mobil Zerice S 32 Zerol 150
		Poly alpha olefin (PAO)		
		Polyol ester (POE)	Mobil EAL Arctic 22 Mobil EAL Arctic 22 CC	Bitzer BSE 32 CPI Solest LT 32 Total Planetelf ACD 32 Mobil EAL Arctic 32

*The viscosity of an oil is its resistance to the uniform and turbulence-free flow of a fluid. The ISO grade is a measure of the viscosity of an oil in cSt at 40°C, as provided by a drawn sample.

ISO GRADE*

ISO 46	ISO 68	ISO 100	ISO 220	ISO 460
Mobil Arctic C Heavy Total Lunaria FR 46	Total Lunaria FR 68 Total Lunaria NH 68 Mobil Arctic 300 Shell Clavus G 68 Suniso 4 GS			
	CP-1009-68 (HT+MN)			
Mobil Zerice S 46	Mobil Zerice S 68 Mobil SHC NH 68 (PAO+AB)	Mobil Zerice S 100		
Total Lunaria SH 46	CP-4624-68-F Mobil Arctic SHC 226 E	Mobil Arctic SHC 228	Mobil Arctic SHC 230	Mobil Arctic SHC 234 (400cSt)
Total Planetelf ACD 46 Mobil EAL Arctic 46	Total Planetelf ACD 68 Mobil EAL Arctic 68	Total Planetelf ACD 100 FY Mobil EAL Arctic 100	Bitzer BSE 170 (170 cSt) Bitzer B 150 SH (150 cSt) Bitzer B 320 SH (320 cSt) CPI Solest 170 (170 cSt) Total Planetelf ACD 150 FY (150 cSt) Total Planetelf ACD 220 FY Mobil EAL Arctic 220	

Lubrication is one of the most important factors in whether or not a refrigeration installation works correctly. The choice of lubricant is specific to the installation and applications in question. It is important to follow the recommendations of the compressor manufacturer. The oil ensures that the different moving parts of the compressor are lubricated by forming a lubricating, homogenous 'film'. In rotary screw compressors, it also ensures tightness and therefore effective refrigeration. **Choosing the right oil is essential if you want to ensure the performance and longevity of your refrigeration installation.**

Lubricants

Products intended for the lubrication of refrigeration compressors



Mineral oils

Wax-free hydrocarbon mixtures specifically chosen for their excellent fluidity at low temperatures.

Oils adapted for use with CFC, HCFC and ammonia-based secondary refrigerant fluids.



6396

Semi-synthetic oils

Mixtures of mineral and synthetic oils designed for refrigeration installations which work at low temperatures and use limited miscibility secondary refrigerant fluids with mineral oils such as R-22 fluid.



6632



3993



5342



6143

Mineral oils

Ref.	Products	Oil type	Packaging	Comments
6632	Mobil Arctic 155	MN	Can 4 L	
3442	Mobil Arctic 155	MN	Can 20 L	
1021	Mobil Arctic 155	MN	Drum 208 L	
3443	Mobil Arctic 300	MN	Can 20 L	
1024	Mobil Arctic 300	MN	Drum 208 L	
7267	Mobil Arctic C Heavy	MN	Can 20 L	
7268	Mobil Arctic C Heavy	MN	Drum 208 L	
3993	Shell Clavus G 68	MN	Can 20 L	
5342	Suniso 3 GS	MN	Can 4 L	
7050	Suniso 3 GS	MN	Can 25 L	
6325	Suniso 4 GS	MN	Can 4 L	
7051	Suniso 4 GS	MN	Can 25 L	
6402	Total Lunaria FR 46	MN	Can 20 L	
6398	Total Lunaria FR 68	MN	Can 20 L	
6447	Total Lunaria FR 68	MN	Drum 208 L	
6396	Total Lunaria NH 68	MN	Can 20 L	
6397	Total Lunaria NH 68	MN	Drum 208 L	

Semi-synthetic oils

Ref.	Products	Oil type	Packaging	Comments
6671	CP-1009-68	HT/MN	Can 18,92 L	Hydrogenated oil for ammonia, very refined, chemically inert.
6672	CP-1009-68	HT/MN	Drum 208 L	
1065	Shell Clavus SD 2212	AB/MN	Can 5 L	
5575	Shell Clavus SD 2212	AB/MN	Can 20 L	
1064	Shell Clavus SD 2212	AB/MN	Drum 209 L	
6143	Bitzer B 5.2	AB/MN	Can 5 L	

Synthetic oils

Ref.	Products	Oil type	Packaging	Comments
• AB: alkyl benzene oils				
These are recommended for R-22 type fluids and HCFC mixtures. They are compatible with traditional mineral oils. Where the original oil is proved to be incompatible with mineral oils, alkylbenzene oils offer an excellent replacement.				
6269	Mobil Zerice S 32	AB	Can 20 L	
6270	Mobil Zerice S 46	AB	Can 20 L	
7419	Mobil Zerice S 46	AB	Drum 208 L	
6222	Mobil Zerice S 68	AB	Can 20 L	
6268	Mobil Zerice S 100	AB	Can 20 L	
4092	Mobil Zerice S 100	AB	Drum 208 L	
6563	Mobil Arctic SHC NH 68	AB/PAO	Can 20 L	Synthetic oil for NH ₃ .
4317	Zerol 150	AB	Can 5 L	
4318	Zerol 150	AB	Can 10 L	
• PAO: poly alpha olefin oils				
These have very low melting points and excellent thermic stability, which render them suitable for use in systems using R-22 or ammonia in extreme conditions.				
6673	CP-4624-68-F	PAO	Can 18,92 L	Synthetic oil with additives to protect circuits using CO ₂ .
6674	CP-4624-68-F	PAO	Drum 208 L	
6404	Total Lunaria SH 46	PAO	Can 20 L	Oil for refrigeration compressors using NH ₃ .
6405	Total Lunaria SH 46	PAO	Drum 208 L	
3445	Mobil Arctic SHC 226 E	PAO	Can 20 L	
1029	Mobil Arctic SHC 226 E	PAO	Drum 208 L	
3446	Mobil Arctic SHC 228	PAO	Can 20 L	
3447	Mobil Arctic SHC 230	PAO	Can 20 L	
1035	Mobil Arctic SHC 234	PAO	Drum 208 L	Upon request.

Synthetic oils

Polymers made up of specific chemical monomers such as esters. The first synthetic oils were developed for HCFCs (AB and PAO). With the arrival of HFCs came a new kind of oil (POE), since mineral oils are not miscible with HFCs.



4317



3445



6268



1029

Lubricants

Products intended for the lubrication of refrigeration compressors



5311



6145



6608



6663

Synthetic oils (continued)

Ref.	Products	Oil type	Packaging
• POE: polyol ester oils			
These are for use with HFCs in all refrigeration and air conditioning applications (except for car A/C).			
6145	Bitzer BSE 32	POE	Can 5 L
6146	Bitzer BSE 32	POE	Can 10 L
5311	Bitzer BSE 170	POE	Can 10 L
5312	Bitzer BSE 170	POE	Drum 200 L
7440	Bitzer B 150 SH	POE	Can 20 L
7371	Bitzer B 320 SH	POE	Can 5 L
7228	Bitzer B 320 SH	POE	Can 20 L
6608	CPI Solest LT 32	POE	Can 18,92 L
6665	CPI Solest LT 32	POE	Drum 208 L
			} Particularly low temperature.
6666	CPI Solest 170	POE	Can 18,92 L
6668	CPI Solest 170	POE	Drum 208 L

Synthetic oils (continued)

Ref.	Products	Oil type	Packaging
• POE: polyol esters oils			
6963	Mobil EAL Arctic 22	POE	Can 5 L
6965	Mobil EAL Arctic 22 CC	POE	Can 5 L
6966	Mobil EAL Arctic 22 CC	POE	Can 20 L
6967	Mobil EAL Arctic 32	POE	Can 5 L
6968	Mobil EAL Arctic 32	POE	Can 20 L
6969	Mobil EAL Arctic 46	POE	Can 5 L
6970	Mobil EAL Arctic 46	POE	Can 20 L
6971	Mobil EAL Arctic 68	POE	Can 5 L
6972	Mobil EAL Arctic 68	POE	Can 20 L
6973	Mobil EAL Arctic 100	POE	Can 20 L
1059	Mobil EAL Arctic 100	POE	Drum 208 L
6319	Mobil EAL Arctic 220	POE	Drum 208 L
1076	Total Planetelf ACD 32	POE	Can 5 L
6663	Total Planetelf ACD 32	POE	Can 20 L
1079	Total Planetelf ACD 46	POE	Can 5 L
1082	Total Planetelf ACD 68	POE	Can 5 L
1081	Total Planetelf ACD 68	POE	Can 20 L
5885	Total Planetelf ACD 100 FY	POE	Can 1 L
6658	Total Planetelf ACD 150 FY	POE	Can 20 L
6662	Total Planetelf ACD 220 FY	POE	Can 20 L
5976	Total Planetelf ACD 220 FY	POE	Drum 208 L

Upon request.

Contact us about any oil not mentioned here.



6965



6969



6662



6972

Lubricants

Products intended for the lubrication of refrigeration compressors



Implementation and use

Products specially developed to supply rapid responses and suitable treatments for acidity problems in refrigeration and air conditioning circuits.

Implementation and use

Ref.	Products	Packaging	Comments
3488	Acid Away	118 ml	Acidity neutraliser for mineral/alkylbenzene oils following a burn out or carbonisation of a refrigeration compressor by chemical means.
6546	Acid Away POE	118 ml	Acidity neutraliser for ester oils.

Analysis

In order to ensure good lubrication of your compressor or in the case of maintenance, please go to page 69 for on site-acid test or laboratory analysis.
Eg.: DPH (photo 6898).



6546



3488



6898

Loading on a pallet

Reference	No. of cans per box	No. of pack. per pallet	No. of box per pallet
BITZER B 5.2 CAN 5 LITRES	6	180	
BITZER B 150 SH CAN 20 LITRES	NA	NA	NA
BITZER B 320 SH CAN 20 LITRES	NA	NA	NA
BITZER B 320 SH CAN 3,78 LITRES	6		
BITZER BSE 170 DRUM 200 LITRES		4	
BITZER BSE 32 / BSE 170 CAN 10 LITRES	3	70	
BITZER BSE 32 CAN 5 LITRES	6	180	
CPI SOLEST CAN 18,92 LITRES	NA	33	NA
CPI SOLEST DRUM 208 LITRES		4	
CPI-1009-68 and CPI-4624-68-F CAN 18,92 LITRES	NA	33	NA
CPI-1009-68 and CPI-4624-68-F DRUM 208 LITRES		4	
MOBIL ARCTIC 155 / 300 DRUM 208 LITRES		4	
MOBIL ARCTIC 155 / 300 CAN 4 LITRES	4	128	32
MOBIL ARCTIC 155 / 300 CAN 20 LITRES		40	
MOBIL EAL CAN 5 LITRES	4	108	27
MOBIL EAL CAN 20 LITRES		32	
MOBIL EAL DRUM 208 LITRES		4	
MOBIL SHC / SHC NH CAN 20 LITRES		40	
MOBIL ZERICE S CAN 20 LITRES		40	
MOBIL ZERICE S DRUM 208 LITRES		4	
SHELL CLAVUS G68 CAN 20 LITRES		40	
SHELL CLAVUS SD2212 CAN 5 LITRES	4	120	40
SHELL CLAVUS SD2212 CAN 20 LITRES		40	
SHELL CLAVUS SD2212 DRUM 209 LITRES		4	40
SUNISO 3GS / 4GS CAN 25 LITRES		24	
SUNISO 3GS / 4GS CAN 4 LITRES	6	216	36
TOTAL LUNARIA FR / NH / SH CAN 20 LITRES		40	
TOTAL LUNARIA FR / NH / SH DRUM 208 LITRES		4	
TOTAL PLANETELF ACD DRUM 208 LITRES		4	
TOTALPLANETELF ACD CAN 20 LITRES		40	
ZEROL 150 CAN 10 LITRES		42	
ZEROL 150 CAN 5 LITRES	4	144	

NA: Non applicable.

Non contractual data.

Product availability can vary by country. Check with your subsidiary for availability or equivalent lubricants.





Equipment

- Using refrigerant fluids
 - Transfer and recovery equipment
 - Scales
 - Measuring and checking devices
 - Vacuum pumps
 - Manifolds
 - Hoses and connectors
 - Tools
 - Detecting leaks
- Application of refrigerants and heat transfer fluids
- Application of brazing alloys
- Application of insulation



Climalife

Recommendations



For refrigerants

Recovery / transfer

Scales

Measuring and checking

Evacuation

Manifolds

Portable leak detection

Fixed leak detection

System analyser

For oils

For heat transfer fluids

For brazing alloys

Commercial refrigeration - Industrial refrigeration - Air conditioning

Recovery unit Recover XLT

Electronic scale 50 kg or scale DRM 15010

Digital vacuum gauge

Infrared thermometer / contact thermometer DT 1630

Relief valve D 60

Super Evac Pump 95 or 142 l/min

Manifold Titan / Manifold DH Clim / Manifold Titan Solar

Leak detector DDH1 / Leak detector DDH2 / Leak detector HFC 92 / Leak detector XP 1

Environment control device MURCO MGD

Electronic analyser

Universal pump

KAPPA 15 diaphragm pump

Universal pump

Refractometer

Relief valve D 60

Portable torch blister pack

Equipment

Tools for professionals



Using refrigerant fluids



7237



7301



6817



7252



6810



6809

Transfer and recovery equipment

Ref.	Products	Dimensions mm	Weight	Comments
7237	Recovery unit Recover XLT	490 x 315 x 317	14,7 kg	Dry piston compressor protected by a constant pressure switch. Lightweight, suitable for all fluids, quiet and easy to use, with its 4 position switch. Stops automatically, governed by LP and HP pressure valve. Capacity (kg/hr) as per ARI 740-98* in gas form: 10.2; liquid form: 54; push-pull: 348.60. Certificate EN 35421.
* tests executed with R-22.				
7301	RD 2100	450 x 220 x 310	15 kg	Dry piston compressor. All gas and liquids. Compact casing protects manometers, valves and on-off switch. HP pressure switch. Capacity (kg/hr) as per ARI-740-98 in gas form: 15; liquid form: 95; push pull: 420. Certificate EN 35421.

Scales

Ref.	Products	Dimensions mm	Weight	Comments
6639	Electronic scale 50 kg (68827)	394 x 311 x 83	4,1 kg	Electronic scales. Maximum load 50kg, precise readings to within 0.1% or 0.015 kg.
6641	Charging kit for scale (68829)			For ref. 6639. Allows the charge in a fluid to be programmed automatically (includes solenoid valve, mains adaptor, case).
7252	Electronic scale DRM 15010 - 150 kg	380 x 320 x 64	2,7 kg	Electronic scales. Maximum load 150kg, precision 10g. Steel plate. Professional usage.

Measuring and checking devices

Ref.	Products	Comments
6817	LCG digital vacuum gauge (69080)	To control evacuation. From 1 bar to 0,025mbar. Automatic temperature compensation without calibration. Low battery indicator. Connection 1/4" FI, female.
6809	Micro infrared Thermometer (69225)	Small size. From -33°C to +220°C. Precise to +/- 2%. Optic ratio* 1.3:1.
6810	Infrared thermometer pistol (69228) *	Large working temperature range from -40°C to +500°C. Precise to +/- 2%, optic ratio* 10:1. Ergonomic. Supplied with protective case.
7069	Contact thermometer DT 1630 *	Ergonomic pocket thermometer from -55°C to +149°C. Audio alarm can be programmed to high or low temperature. Flexible cable with stainless steel probe.
* optic ratio: distance (m) / surface (m).		
5999	Relief valve D 30 - 30 bar	Neutral gas detector. Service pressure 30 bar to put V.R.V. type systems under nitrogen pressure.
6864	Relief valve D 60 - 60 bar	Controls the pressure content of the installation. Two-way pressure gauge. Type C entry connector. Brazing outlet connector for 6mm tube and double ring outlet connector.

Vacuum pumps

Ref.	Products	Dimensions mm	Weight	Comments
7251	Vacuum pump 2VP42 EV		11 kg	2 levels 42L/Min. All fluids, evacuates to < 25 microns (0,034mbar). Flare 1/4"M. Rib cooling, easily accessible for filling and emptying. With vacuum gauge.
6643	Super Evac pump 95 l/min (93543)	381 x 169 x 300	13,4 kg	2 levels 95 L/Min, M Flare inlet connector: 1/4"-1/2", inbuilt vacuum gauge, empties to: 15 microns (0,02mbar). One way valve, gas ballast.
6644	Super Evac pump 142 l/min (93563)	406 x 169 x 300	14,3 kg	2 levels 142 L/Min, M Flare inlet connector: 1/4"-1/2", inbuilt vacuum gauge, empties to: 15 microns (0,02mbar). One way valve, gas ballast.
6654	Oil for vacuum pump (93092)			0.95 litre can. For Super Evac Pump. ISO Grade 32.
7256	Oil for vacuum pump VPO 100			1 litre can. For 2 VP vacuum pump.



6644

System analyser

Ref.	Products	Weight	Comments
7558	Electronic analyser 4 valves	1,4 kg	91 refrigerants in memory. By-pass, LCD screen, precise to 1%. Supplied software, free update download on the internet. Delivered in a carrying case with a pack of 3 hoses, 2 probes, one vacuum gauge and one USB cable.

7147



Manifolds

Ref.	Products	Dimensions mm	Comments
	Manifold Titan		By pass, HP/LP (bar) manometer. Aluminium body, lightweight and robust, piston valves. Liquid indicator. Precise to 1%.
	Manifold Titan Solaire		By pass, HP/LP (bar) solar manometers. 8 refrigerants, digital preview of the selected refrigerant, pressure and temperature. Aluminium body, lightweight and robust, piston valves. Liquid indicator. Precise to 1%.
	Manifold DH Clim		By pass, HP/LP (bar) manometer. Aluminium body, lightweight, piston valves. Liquid indicator.

Manifolds (sold separately)	2 valves	4 valves	R-22	R-134a	R-404A	R-407C	R-410A	R-422D	R-427A	R-507
6826 Manifold DH Clim	X		X	X		X	X			
7143 Manifold DH Clim		X	X	X		X	X			
7062 Manifold Titan HFC (49936)		X		X	X	X				
7063 Manifold Titan / R-410A (49869)	X						X			
7064 Manifold Titan R-22 / R-134a / R-404A (49833)	X		X	X	X					
7406 Manifold Titan Solar	X		X	X	X	X	X	X	X	X

7151	Empty manifold case	475 x 390 x 130		Transport case for manifold. Black, double foam interior.
7147	Manifold case DH Clim 2 valves	475 x 390 x 130		Includes one DH Clim 2 valve manifold, one pack of three DH Clim 1/4" hoses and one pack of three DH Clim R-410A hoses 150 cm with valves.

Electronic analyser

Essential tool to realize a precise diagnosis of the installation: pressure, vacuum level, temperature, 91 integrated curves of pressure/temperature relationship. Automatic calibration, allows recording of measurements either continuously or at regular intervals. Calculates in real-time, heating and cooling. Immediate response. Downloading of records on PC.



7558

Contact your subsidiary for product availability.

Equipment

Tools for professionals



7357



6799



7452



6054



885

Hoses, coupling

Ref.	Products	Connect.	Comments
7357	Pack of 3 hoses 90 cm (29983) valves	1/4"	Reinforced hoses with stop valves, to prevent moisture ingress. Colours: blue, red, yellow. For all refrigerants (except R-410A).
7356	Pack of 3 hoses 150 cm (29985) valves	1/4"	
7358	Pack of 3 hoses 90 cm R-410A (29483) valves	1/4" 5/16"	R-410A special Reinforced hoses with stop valves, to prevent moisture ingress. Connection 1/4" - 5/16" for blue and red and 1/4" - 1/4" for yellow.
7359	Pack of 3 hoses 150 cm R-410A (29485) valves	1/4" 5/16"	
7453	Pack of DH Clim hoses 150 valves	1/4"	Pack of 3 hoses 150cm for all refrigerant (except R-410A) with stop valves. Colours: blue, red and yellow.
7452	Pack of R-410A DH Clim hoses 150 valves	1/4" 5/16"	Pack of 3 hoses 150cm special R-410A with stop valves. Colours: blue, red and yellow.
6849	Connector 1/4"F x 5/16"M		Unit. R-410A special.
6772	Plastic female connector 21.7 - 1/4 SAE		Unit
1226	Brass female connector 21.7 - 1/4 SAE		Unit
1256	Brass female connector 21.7 - 3/8 SAE		Unit
1177	J17 joint for brass connector		Unit. Fibre joint Ø 19.6 x 12 x 3 for bronze coupling 21.7-1/4 and 3/8.

Tools

Ref.	Products	Comments
6799	Bender housing with rack	Portable mechanical bender. 1/4", 5/16", 3/8", 1/2", 5/8", 3/4" and 7/8".
6800	Triple bender	1/4", 5/16" and 3/8".
6805	Flaring tool case	1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8". Rapid conversion.
6852	Disengageable flaring tool	Removable ergonomic handle, jagged flares thanks to excentric cone.

Leak detection

Ref.	Products	Comments
• Sensitivity control		
6088	5 gm/year sensitivity level checker	Sets sensitivity to 5 gm/yr for portable detectors + checking report.
5884	Mini-Check	Creates mini leak of 5 gm/yr of R-134a so that the user can conduct on-site checks that portable leak detectors are working correctly before searching for any leak.
• Detection using bubbles		
885	Prestobul	Box of 12 cans. Use in the vicinity of the suspected leak. Bubbles will form at the location of the leak.
• Detection using fluorescence		
6818	5 LED UV torch (69790)	3 UV bulbs, 2 blue. Robust Aluminium body.
• Tracer syringe		
6889	Universal tracer injector kit (69702)	Rapid injection kit for all refrigeration installations. 1/4" female connectors. One syringe contains 4 doses of 7.5 ml.
6697	Pack of 6 tracer injectors (69700)	Refill pack containing 6 syringes for tracer kit.
• Portable electronic detectors		
7417	Leak detector DDH1	Heated diode sensor. 3 sensitivity levels, suitable for all fluids, loud alarm, battery powered. Automatic calibration. Supplied with case and batteries. Certificate EN 14624.
6753	Leak detector DDH2	Heated diode sensor. 3 sensitivity levels, suitable for all fluids, leaks signalled by audio alarm + LED, battery or mains powered. Numeric indicator allows rate of leak to be estimated in gm/year. Automatic calibration. Supplied with case. Certificate EN 14624.
6798	Leak detector XP 1	By ionisation. Highly sensitive (3 gm/yr). 7 sensitivity levels, suitable for all fluids, battery powered. Supplied with replacement sensor. Certificate EN 14624.
6054	Leak detector Sapre HFC 92	Ceramic permeation cell, highly sensitive (1 gm/yr), suitable for all fluids, battery powered. Certificate EN 14624.
7559	Leak detector D-Tek CO ₂	Infrared sensor for R-744. Sensitivity 6 gm/yr. NiMH Battery powered, Low battery gauge. Supplied with case and adapter 12 and 220V.
• Replacement parts for portable electronic detectors		
6950	DDH1, DDH2 detector and filters (69384)	Heated diode sensor. Includes pack of 5 filters.
6951	DDH1, DDH2 filters (69385)	Pack of 5 filters.
4526	Detector for Tek-Mate	And D-Tek.
5127	XP 2 detector	For XP 1. Pack of 3 sensors.
6418	HFC 92 cell pack	For HFC 92 detector.
5969	HFC 92 filters	For HFC 92 detector. Pack of 20 filters.



6753



5884



7559



7417

Equipment

Tools for professionals



Environment control devices

Murco environment controls appliances detect refrigerant fluids in factories, industrial manufacturing, air conditioning systems, coolers, boilers and numerous other professional applications.



MGD



5116



7598



6596

Leak detection (continued)

Ref.	Products	Comments
• Environment control devices		
5103	Fixed detector MURCO MGD1SA1L	1 probe, 1 level R-22.
5108	Fixed detector MURCO MGD1SC2L	1 probe, 2 levels HFC (calibrated on R-134a).
6060	Fixed detector MURCO MGD1SC404A 1L	1 probe, 1 level R-404A.
5111	Fixed detector MURCO MGD2SA1L	2 probes, 1 level R-22.
5115	Fixed detector MURCO MGD2SA2L	2 probes, 2 levels R-22.
5112	Fixed detector MURCO MGD2SC1L	2 probes, 1 level HFC (calibrated on R-134a).
5116	Fixed detector MURCO MGD2SC2L	2 probes, 2 levels HFC (calibrated on R-134a).
6495	Fixed detector MURCO MGD2SC404A 1L	2 probes, 1 level R-404A.
6061	Fixed detector MURCO MGD2SC404A 2L	2 probes, 2 levels R-404A.

10 ppm sensitivity.

Audio and visual internal alarm and switch for external alarm. Free contacts for telesurveillance and security piloting. 12V output for centralized management system. Classified Exe and Exds (risky area). Ask us about other models equipped with up to 6 probes and for other fluids.

• Environment control for R-744

6594	Probe A Murco 1 level all HCFCs
6596	Probe C Murco 1 level all HFCs
6595	Probe A Murco 2 levels all HCFCs
6702	Probe C Murco 2 levels all HFCs

• Environment control for R-744

7554	Fixed detector MURCO 1SIR 1L CO ₂	1 probe 1 level CO ₂
7555	Fixed detector MURCO 1SIR 2L CO ₂	1 probe 2 levels CO ₂
7556	Fixed detector MURCO 2SIR 1L CO ₂	2 probes 1 level CO ₂
7557	Fixed detector MURCO 2SIR 2L CO ₂	2 probes 2 levels CO ₂

• 10 ppm calibration kits

7597	Calibration kit CAN110 R-134a
7598	Calibration kit CAN110 R-404A
7599	Calibration kit CAN110 R-22

Sensitivity control kit for checking environment control annually. Includes: calibration gas 110 L cylinder, flow regulator, calibration hood with evacuation and non-absorbent flexible tubing. Permits easy and quick checking of appliance sensitivity.

Measuring apparatus

Ref.	Products	Comments
4637	Refractometer	Precise on-site measurement of the freezing point of a glycol-based heat transfer fluid.

Transfer apparatus

Ref.	Products	Dimensions	Comments
5785	KAPPA 15 diaphragm pump	346 x 225 x 170 mm	For transferring heat transfer fluids. Self-priming pump with flow rate of 13.5 l/min, under a pressure of 20 bar.
7299	Universal pump	For 217 L barrel	Includes: one FP430 PP-1000 plunger body, an F417 electric motor, a screw for G2 plunger body.
7298	Universal pump	For 30 L barrel	Includes: one FP430 PP-700 plunger body, an F417 electric motor, a screw for G2 plunger body.
7139	FP 430 PP - 1000 plunger bodies	Unit	For 217 L barrel.
7142	FP 430 PP - 700 plunger bodies	Unit	For 30 L barrel.
7141	F 417 electrical motor	Unit	
7140	Nut for G2 plunger bodies	Unit	Upon request.

Materials

Ref.	Products	Packaging	Comments
5999	Relief valve D 30 - 30 bar		See page 42.
6864	Relief valve D 60 - 60 bar		See page 42.
7250	Portable torch blister pack	Unit	Includes 1 D Metaljet (Portable blowtorch. Works with disposable cartridge. Metal handle. Supplied with cyclone burner, beek 16mm. Piezo ignition with lock.) and 1 D Ultramatt (aluminium cartridge).
7153	D Ultramatt	Box of 12 units	Aluminium cartridge for D Metaljet.

Silicones

Ref.	Products	Packaging	Comments
5703	Silicone sanitary white	Box of 25 x 310ml cartons	Acetic silicone with fungicide.
5704	Silicone neutral white	Box of 25 x 310ml cartons	High performance neutral silicone for very humid environments. Special insulation panels. Fungicide, approved for "occasional contact with foodstuffs".

5703



5999

Application of heat transfer and secondary refrigerant fluids



4637

Universal pump

This pump can be used to introduce heat transfer fluids, lubricants and our cleaning products.



7299

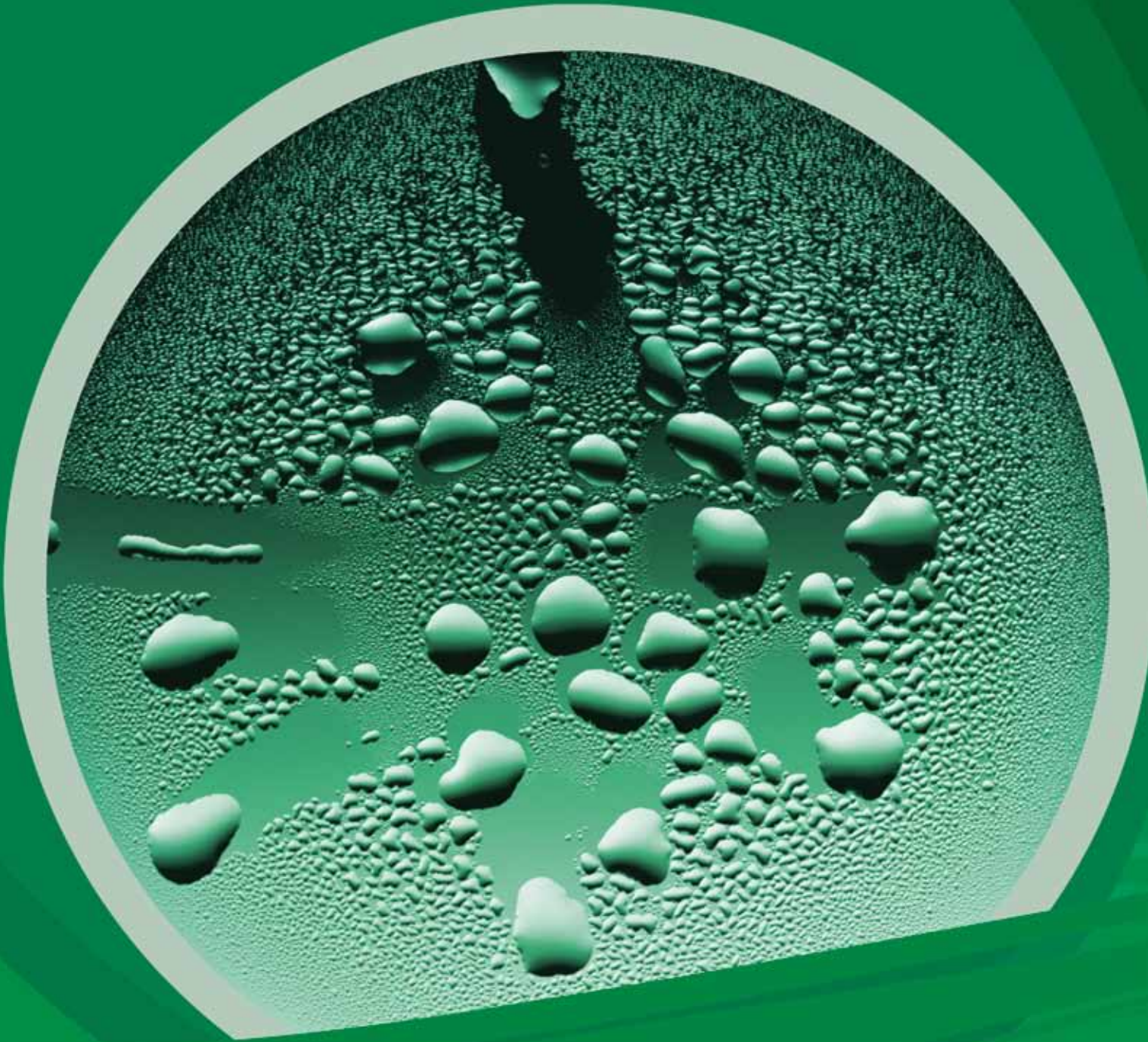
Using brazing alloys

Insulation application



7250

Products, packaging and fill weights may vary by country. Contact your subsidiary for more detailed information.



Cleaning

- Internal cleaning of refrigeration systems
- Internal cleaning of heat transfer fluid circuits
- Water treatment for heating and cooling closed loops
- External cleaning of thermal installations



Climalife

Recommendations



Internal cleaning of refrigeration installations

Commercial / industrial refrigeration	Nettogaz GC1 - Facilisolv
Air conditioning	Nettogaz GC1

Water treatment for heating and cooling closed loops

Neutral pH grime removal	Thermonett® Sludge remover
Neutral pH anti-corrosion protection	Thermonett® Protector
Collection of sludge and particles in suspension	Thermonett® Sludge separator
Control of the concentration of Thermonett® Protector	Thermonett® concentration test

Internal cleaning of heat transfer fluid circuits

Limescale removal, efficient and safe	Duonett® D7
Strong corrosion removal	Desoxydant P
Strong grime removal	Dispersant D

External cleaning of thermal installations

	POWER UNIVERSAL CLEANER		ACTIV' CLEANER DISINFECTANT				CONTACT CLEANER DISINFECTANT INDIRECT FOOD CONTACT*		
	RTU Spray 750 ml	Concen- trated 5 l can	One Shot 150 ml	Foam Aerosol 500 ml	RTU Spray 750 ml	Concen- trated 5 l can	RTU Spray 750 ml	RTU 5 l can	Booster 100 ml
REFRIGERATION									
Condensers:									
• small unit	X								
• other		X							
Evaporators:									
• small unit				X	X		X	X	
• other						X			X
External parts of the unit	X								
Refrigerated showcases							X	X	X
AIR CONDITIONING									
Internal units:									
• walls units				X	X				
• ceiling units				X					
• ducts			X						
External units	X	X							
Evaporators external lagging				X	X				
Internal lagging	X				X				
Batteries Air Handling units						X			
HEATING - VENTILATION SYSTEMS									
Ventilation systems			X						
Ventilation convectors					X				
Ventilation ducts			X						
Heating systems	X								
KITCHEN									
Work surfaces							X	X	X
Hoods							X		X
Cooking equipment							X		X
Refrigerators / Freezers							X	X	X
OTHER APPLICATIONS									
Flat surfaces (eg. floor...)		X							

*Indirect food contact: Mandatory rinsing with water after use.

Cleaning

Products for the cleaning and protection of refrigeration and air conditioning equipment



Nettogaz GC1

Cleaning solvent for refrigeration installations pressurised under 10 bar of nitrogen. GC1 is efficient for halogenated refrigerants and refrigeration oils. GC1 does not have any effect upon the ozone layer and is non-flammable. It boils at 20°C and is therefore very easy to extract from a circuit.



Nettogaz GC1

Facilisolv

Internal cleaning solvent for industrial refrigeration circuits. Facilisolv works effectively in circuits using halogen fluids or NH₃ and those using the usual refrigeration oils.

Internal cleaning of refrigeration installations

Ref.	Product	Packaging	Charge	Comments
7045	Nettogaz GC1	Friopack	10 kg	
7044	Nettogaz GC1	Cylinder 27 L	26 kg	
262	Connection kit GC1	Piece		Crown fitting 25m PVC tube + 2 special stoppers + 2 clamp collars.
7109	Small recovery drum Nettogaz GC1	Cask 30 L		For recovery of used GC1.
7046	Facilisolv	Cask 30 L	35 kg	
7047	Facilisolv	Drum 210 L	249,5 kg	
7089	Connection kit Facilisolv	Piece		Crown fitting 25m PVC tube + 2 special stoppers + 2 clamp collars.
7109	Small recovery drum Facilisolv	Cask 30 L		For recovery of used Facilisolv.
1128	Large recovery drum Facilisolv	Drum 217 L		For recovery of used Facilisolv.
6462	Nettogaz Greenclean	Friopack® *	10 kg	Nettogaz Greenclean is an internal cleaning detergent for refrigeration installations.
6461	Nettogaz Greenclean	Cylinder 26 L	20 kg	
6464	Recovery cylinder Greenclean	Cylinder 27 L		Only for recovering Greenclean.

* while stocks last.



Internal cleaning of heat transfer fluid circuits

Ref.	Product	Packaging	Comments
6960	Duonett® D7	Can 5 L	Safely removes limescale from boilers, heat exchangers and water systems. Neither toxic nor corrosive. Entirely biodegradable. Does not carry any risks for users or materials. Production on demand.
6851	Duonett® D7	Can 20 L	
6902	Duonett® D7	Drum 225 L	
3348	Desoxydant P	Can 20 kg	For removing limescale and deoxidising metallic surfaces in heat transfer fluid circuits. Use between 20 gm and 200 gm per litre of water. Rinse with Dispersant D followed by water.
3349	Dispersant D	Can 20 kg	For removing metal oxides and non-encrusted grime from heat transfer fluid circuits. Use between 20 gm and 50 gm per litre of water. Always rinse off with water.
6019	Nettoyant N	Drum 200 L	For cleaning secondary refrigerant fluid circuits before introduction of a heat transfer fluid. Always rinse with water. Ready to use. Production on demand.



6851



3349



3348

Cleaning

Products for the cleaning and protection of refrigeration and air conditioning equipment



Water treatment for heating and cooling closed loops:

Unique combination of chemical and physical solutions for water treatment of heating and cooling networks in tertiary, commercial and residential markets.



7399 and 7400



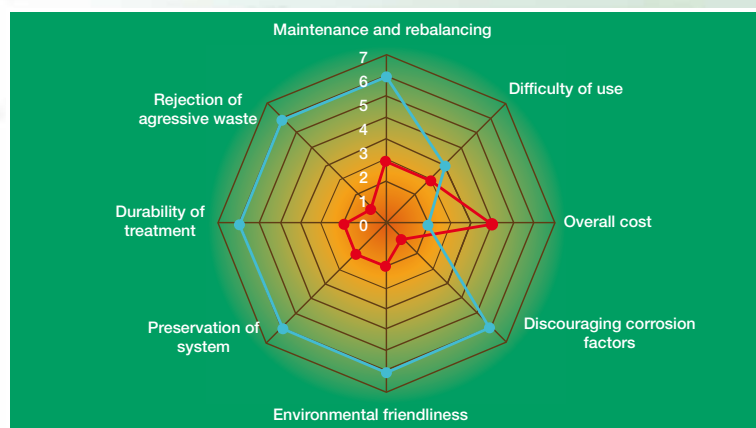
7401

R Thermonett® Sludge remover and Protector are approved by the French CSHP (Committee of Public Safety and Hygiene).

Water treatment for heating and cooling closed loops

Ref.	Product	Packaging	Comments
• Chemical treatment			
7399	Thermonett® Protector	Can 20 L	Conceived to protect air conditioning systems and direct central heating installations, including those containing aluminium components. It prolongs the lifespan of the system, leaving a passivation film on the metal surfaces of the installation which prevents the appearance of scale and corrosion. Proportion to a level of 1% of the volume of water in circulation. Approved by the CSHP (French Committee of public safety and health).
7400	Thermonett® Sludge remover	Can 20 L	Non-acidic product with neutral pH, it restores a systems heat balance by eliminating the buildup of sludge (magnetite) and ensure the quick and easy removal of cold spots. Thus real savings on primary energy can be achieved. Dose of 1% of the system volume. Approved by French CSHP (Committee of Public Safety and Hygiene).
7401	Test concentration	Kit of 10 tests	Checks the level of protection of Thermonett® Protector to anticipate future maintenance treatments. A simple colour test shows if the installation is still protected against limescale or corrosion. The concentration test is a warranty for safety and prevention.

Comparison between a usual chemical treatment at aggressive pH and the Thermonett® process combining a physico-chemical solution.



● Aggressive pH solution
● Neutral pH solution

Restoring the energy balance and protection of the system is essential for achieving the goal of reducing energy consumption.

Legend: Criteria scored from 1 to 7, 7 being the highest rating for given criteria.

Water treatment for heating and cooling closed loops (continued)

Ref.	Product	Major diameter	Comments
<p>• Physical treatment</p>			
	Sludge separator Thermonett®		The sludge pot efficiently captures the debris in suspension. Located on the return line and at the lowest point to reach 100% of the flow. It causes no pressure drop (0.02 bar) and does not interfere with the flow when full. Equipped with a magnetic bar, to optimize the collection of metallic oxides.
<p>Tip: Select the separator with the same diameter as your return line.</p>			
7392	Separator ZUM 25	25	} Fitted with a magnetic bar.
7393	Separator ZUM 32	32	
7394	Separator ZIO 50F	50	} Can be used as a air separator by installing upside down at the generator's output. To be fitted with a magnetic unit ZIMA.
7395	Separator ZIO 65F	65	
7396	Separator ZIO 80	80	
7397	Separator ZIO 100F	100	
7424	Separator ZIO 125F	125	
7425	Separator ZIO 150F	150	
7426	Magnetic bar ZIMA 125-6200	For ZIO 125F and 150F.	} Magnetic bar in a brass thimble for easy maintenance, recommended to optimize the efficiency of capture.
7398	Magnetic bar ZIMA 50-100	For ZIO 50F to 100F.	



Sludge separator

THERMONETT



The Thermonett® range is available in France, Belgium, Algeria, Morocco, Tunisia.
For more information: www.thermonett.com

Cleaning

Products for the cleaning and protection of refrigeration and air conditioning equipment



Why regularly clean and disinfect an installation?

The regular cleaning of an installation:

- improves its performance,
- prevents contamination,
- avoids offensive odours,
- increases longevity.

With only 3 products, **Frionett® Power**, **Frionett® Activ'**, **Frionett® Contact**, the majority of your needs for cleaning, degreasing, disinfecting, preventing and deodorising are covered. They help you face every situation (air-conditioning, commercial refrigeration, industrial refrigeration, hospitals, professional kitchens,...).

External cleaning of thermal installations

Ref.	Product	Packaging	Comments
• Universal cleaner			
7375	Frionett® Power RTU	Trigger spray bottle 750 ml. Ready to use	Alkaline and non-corrosive cleaning product used to eliminate grease and other contaminants, intended for professional cleaning of refrigeration and air-conditioning facilities (evaporators, condensers, batteries, ventilators and other surfaces).
7376	Frionett® Power	Concentrated can 5 L	
• Cleaner, degreaser, disinfectant, deodorant			
7378	Frionett® Activ' One shot	Aerosol 150 ml	Disinfecting and deodorising product for the treatment of ventilation and air-conditioning systems (ducts, ...) and for the purification of enclosed spaces. Eliminates bacteria, fungi and offensive odours.
7380	Frionett® Activ' Foam	Foam aerosol 500 ml	Powered active foam for cleaning small and medium sized refrigeration and air-conditioning installations (evaporators, internal units, ...). Frionett Activ' Foam cleans deeply, deodorises and prevents the development of micro-organisms.
7382	Frionett® Activ' RTU	Trigger spray bottle 750 ml	Ready to use cleaning and disinfecting product for maintaining refrigeration and air-conditioning installations (for evaporators and internal units of small and medium capacities). Formulated to fight bacteria and fungi, Frionett Activ' RTU cleans deeply and eliminates offensive odours.
7384	Frionett® Activ'	Concentrated can 5 L	Concentrated cleaning and disinfecting product, designed to maintain refrigeration and air-conditioning installations (for large surface evaporators and internal units). Formulated to fight bacteria and fungi, Frionett Activ' cleans deeply and eliminates offensive odours.



External cleaning of thermal installations (continued)

Ref.	Product	Packaging	Comments
• Cleaner degreaser and disinfectant dedicated for indirect food contact			
7386	Frionett® Contact RTU	Trigger spray bottle 750 ml. Ready to use	Ultra-powerful alkaline product for cleaning and disinfecting refrigeration systems (cold rooms, ...), and surfaces in food preparation areas (professional kitchens, ...).
7388	Frionett® Contact RTU	Can 5 L Ready to use	
7390	Frionett® Contact Booster	Flask 100 ml	Ultra-concentrated alkaline product for disinfecting and degreasing equipment, parts and surfaces of refrigerated installations, food preparation areas, professional kitchen, communities, etc.

Frionett Activ' and the Frionett contact range are not sold in The Netherlands and Belgium, because of Dutch and Belgian biocide legislation; article 72; first paragraph regarding crop protection regulations. Contact Climalife local representative to find alternative choice.



For more information: www.frionett.com



Brazing Alloys

- Bronze / silver / phosphorous cadmium-free brazing alloys
- High silver content brazing alloys
- High silver cadmium-free brazing alloys
- Flux



Climalife Recommendations



% Ag	Diam. mm	Without cadmium		With cadmium	
		Bare	Coated	Bare	Coated
56	2	D 56 A			
55	2		D 55 AEF		
45	2			D 45	
40	2	D 40 A	D 40 AEF	D 40	D 40 E
35	2			D 35	D 35 E
34	2		D 34 AEF		
30	2			D 30	D 30 E
25	2		D 25 AEF		
15	2 and 3	DP 155			
6	2	DP 67 GDF			
5	2 and 3	DP 56			
2	2 and 3	DP 26			
0	2	DP 07			



Metal combinations

	copper/copper	bronze/copper	bronze/bronze	steel/steel	steel/copper	steel/stainless steel	bronze/stainless steel
	small joint space	small joint space	small joint space	small joint space	small joint space	small joint space	small joint space
	small joint space	small joint space	small joint space	small joint space	small joint space	small joint space	small joint space
	small joint space	small joint space	small joint space	small joint space	small joint space	small joint space	small joint space
	average joint space	average joint space	average joint space	average joint space	average joint space		
	average joint space	average joint space	average joint space	average joint space	average joint space		
	average joint space	average joint space	average joint space	average joint space	average joint space		
	average joint space	average joint space	average joint space				
	important joint space	important joint space	important joint space				
	important joint space						
	important joint space	important joint space	important joint space				
	important joint space	important joint space	important joint space				
	important joint space	important joint space	important joint space				



contact with food



small joint space



average joint space



important joint space

Brazing alloys

A range of brazing products for all metals



Bronze / silver / phosphorous brazing alloys

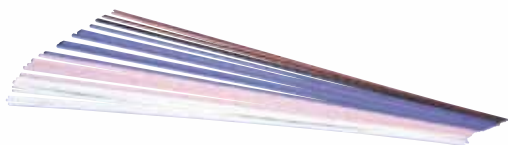
The advantages of this type of brazing alloy include: a lower fusion temperature than binary brazing alloys, increased fluidity, improved alloy conductivity and better joint resistance.



1007

Brazing alloys with a high silver content

These have increased mechanical resistance with good elongation and allow metals with different expansion characteristics to be joined together.



Bronze / silver / phosphorous brazing alloys without cadmium

Ref.	Products	% Ag	Diameter	Packaging	Comments
• Bare brazing alloys					
1016	Brazing alloy DP 155	15	2 mm	Package of 1 kg	
1018	Brazing alloy DP 155	15	2 mm	Package of 5 kg	
1017	Brazing alloy DP 155	15	3 mm	Package of 1 kg	
1019	Brazing alloy DP 155	15	3 mm	Package of 5 kg	
5183	Brazing alloy DP 67 GDF-ATG	6	2 mm	Package of 1 kg	Special Gaz de France applications.
1007	Brazing alloy DP 56	5	2 mm	Package of 1 kg	
1010	Brazing alloy DP 56	5	2 mm	Package of 5 kg	
1009	Brazing alloy DP 56	5	3 mm	Package of 1 kg	
1011	Brazing alloy DP 56	5	3 mm	Package of 5 kg	
953	Brazing alloy DP 26	2	2 mm	Package of 1 kg	
956	Brazing alloy DP 26	2	2 mm	Package of 5 kg	
954	Brazing alloy DP 26	2	3 mm	Package of 1 kg	
957	Brazing alloy DP 26	2	3 mm	Package of 5 kg	
3676	Brazing alloy DP 07	0	2 mm	Package of 1 kg	

Brazing alloys with a high silver content

Ref.	Products	% Ag	Diameter	Packaging
• Bare brazing alloys				
997	Brazing alloy D 45	45	2 mm	Package of 1 kg
986	Brazing alloy D 40	40	2 mm	Package of 1 kg
979	Brazing alloy D 35	35	2 mm	Package of 1 kg
961	Brazing alloy D 30	30	2 mm	Package of 1 kg
• Brazing alloys with a flexible coating				
990	Brazing alloy D 40 E	40	2 mm	Package of 0,5 kg
992	Brazing alloy D 40 E	40	2 mm	Package of 2,5 kg
980	Brazing alloy D 35 E	35	2 mm	Package of 0,5 kg
981	Brazing alloy D 35 E	35	2 mm	Package of 2,5 kg
968	Brazing alloy D 30 E	30	2 mm	Package of 0,5 kg
970	Brazing alloy D 30 E	30	2 mm	Package of 2,5 kg



Brazing alloys with a high silver content without cadmium

Ref.	Products	% Ag	Diameter	Packaging	Comments
• Bare brazing alloy					
5964	Brasure D 40 A	40	2 mm	Package of 1 kg	
7422	Brasure D 56 A	56	2 mm	Package of 1 kg	
• Brazing alloy with a flexible coating					
1001	Brazing alloy D 55 AEF	55	2 mm	Package of 0,5 kg	Very thin coating: 2.8 mm exterior diameter.
5886	Brazing alloy D 40 AEF	40	2 mm	Package of 0,5 kg	Very thin coating: 2.8 mm exterior diameter.
5948	Brazing alloy D 40 AEF	40	2 mm	Package of 2,5 kg	
5809	Brazing alloy D 34 AEF	34	2 mm	Package of 0,5 kg	Very thin coating: 2.8 mm exterior diameter.
5810	Brazing alloy D 34 AEF	34	2 mm	Package of 2,5 kg	
7296	Brazing alloy D 25 AEF	25	2 mm	Package of 0,5 kg	
• Flux for brazing alloys with a high silver content					
949	Flux DX powder			Jar of 130 gm	
7134	Flux gel special "Gaz de France"			Jar of 200 gm	For Gaz de France applications using brazing alloy DP 67 GDF-ATG.

See materials range for usage instructions.



To safeguard the health of users, Climalife recommends brazing alloys which do not contain cadmium.



Brazing alloys with a high silver content without cadmium

These are recommended for those cases where the working conditions are such that cadmium cannot be used (for hygiene or work safety reasons). They are particularly useful for materials which will be used in the food industry, where the use of cadmium is forbidden.

7134



949



7422





Analysis

- Refrigerant analysis
- Oil analysis
- Heat transfer fluid analysis



Climalife

Recommendations



Recommendations

Refrigerants

Has the refrigerant fluid in the installation become contaminated?	Identification/purity Composition
Is there any moisture in the fluid?	Water content
Is there any residue in the oil or fluid?	Residue or oil content
Is there any acidity in the fluid?	Acid index

Lubricants

What is the general condition of the oil in the installation?	DPH A
	DPH B
After a retrofit, does any of the original oil remain as residue?	DPH E + DPH R
What are the general characteristics of the oil in the installation?	Specific analysis kit

Secondary refrigerant/heat transfer fluids

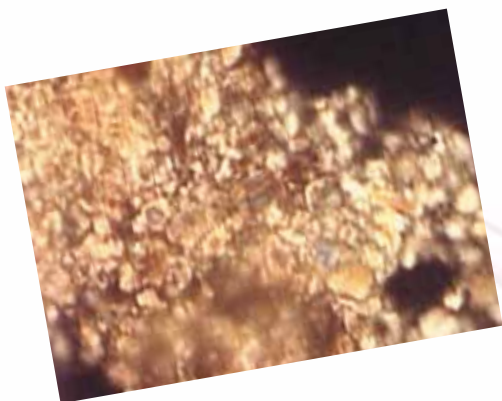
What is the freezing point of the fluid?	APC A
What are the principal characteristics of the fluid?	APC B
What kind of glycol is it, and what are its principal characteristics?	APC B + CPG quantiglycol
Which filters should I use?	Particle count
How much wear has the installation suffered, and are there any particles in the fluid?	Ferrography

Frequency	Benefit
As needed	Safety
As needed	Insurance purposes
As needed	Preventative
As needed	Preventative
As needed	Preventative
Once a year	To ensure that any changes in the installation are noted
Once a year	To ensure proper insulation
As needed (after a retrofit)	Safety
As needed	For confirmation purposes
As needed	Safety - essential in winter
At least once a year	Insurance purposes
As needed	When an installation is about to be put back into use
As needed	Saves money
As needed	Preventative



Analysis

Solutions for the preventive follow-up of installations



767



3835

Refrigerant analysis

Ref.	Products	Comments
5888	Liquid analysis package	Includes: identification, water content, oil content, acidity, appearance. For low pressure refrigerants: R-11, R-113, R-123, R-141b.
5889	Liquefied gas analysis package	Includes: identification, water content, oil content, acidity, appearance. For CFCs, HCFCs, HFCs except low pressure refrigerants (see 5888).
5890	Liquefied gas analysis package with composition	Includes: composition, water content, oil content, acidity, appearance. For CFCs, HCFCs, HFCs except low pressure refrigerants.
778	Identification/purity (GPC)*	Determines the purity of the fluid, using chromatography, during the gaseous phase.
779	Composition (GPC)*	Determines the composition by weight of the liquid phase of the refrigerant.
772	Water content of liquefied gas	Measures the water content of the liquid phase of the refrigerant.
775	Oil residue or content	Measures the residue content of the liquid phase of a refrigerant.
770	Acid rate for liquefied gas	Measures the acidity of the liquid phase of the refrigerant.
776	Non-condensable gases by GPC (during the gaseous phase)*	Measures non-condensable gases during the gaseous phase of the refrigerant fluid.
777	Water/oil content of ammonia	Measures the water and oil content of NH ₃ .
769	On-site sampling	We will come and take samples at your location.
767 884 3835 768	Low pressure sampling cylinder High pressure sampling cylinder Medium pressure sampling cylinder Ammonia sampling cylinder] Provision of.

* GPC: Gas Phase Chromatography



Oil analysis

Ref.	Products	Comments
7562	Acitest Unipro	Box of 6. Acidity test for all kind of additivated or non additivated oils (formulation without toluene).
DPH: Periodic diagnostic test on the refrigerant oil in a circuit. The values obtained are compared with both standard values and Climalife recommendations.		
875	DPH A	Appearance + viscosity + acid index + water content + elements indicating wear + additives + contaminants. 1 x 60 ml bottle.
876	DPH B	Same as DPH A + dielectric constant. 1 x 500 ml bottle.
877	DPH E	Used to determine the percentage of oil remaining after a retrofit. Physico-chemical state is compared with a control sample. 3 x 60 ml bottles (1 for the oil contained in the installation before retrofit, 1 for the new oil before introduction in the system and 1 for the oil in the installation after retrofit and running).
3978	DPH R	After a DPH E only, determines the percentage of the original oil remaining after the subsequent operations to change the oil. 1 x 60 ml bottle.
6035	Kit for specific analysis	4 tests to analyse viscosity, water content, acidity and the presence of the 5 elements which indicate wear (Fe, Zn, Cu, Al, Si).
789	Viscosity at 40°C	Measures kinematic viscosity.
785	Acidity rate	Measures the acidity of the lubricant.
787	Element contents	Identifies and quantifies the following elements: B-P-Zn-Fe-Cr-Si-Ba-Mg-Cu-Mo-Sn-Pb-Cd-Al-Ni-Ca-Sb-Ag-Na.
786	Water content	Measures the water content of the lubricant.
788	Dielectric constant	Measures the electrical isolation qualities of the lubricant.
4962	Ferrogaphy oil	Identifies and quantifies the particles present in the lubricant.
6083	Particle counting	Determines the number of particles by size. Allows the correct size filter to be selected.
6084	Infrared spectrum	Identifies the nature of an unmixed lubricant.
6548	Kit gravimetric pollution	Measures the particle mass of the lubricant.

Acitest Unipro

On site acidity control test for an instantaneous result.

Allows diagnosis during maintenance, increases the installations security and productivity and reduces the prospect of failure. Researched and developed by Climalife to determine the acidity level of an oil. Gives an indication of its state: good, limit, or acid.



7562

DPH

Periodic diagnostic test for preventive maintenance of installations.

Oil values are compared with standards and recommendations are made by Climalife experts. Climalife will advise you about the sample data based on the chosen frequency.



6035



875

Analysis

Solutions for the preventive follow-up of installations



Heat transfer fluid analysis

Ref.	Products	Comments	
5896	Alkaline reserve	Evaluates protection against corrosion.	
5897	pH	Measures the potential of hydrogen (pH). i.e Alkalinity/Acidity.	
5898	Freezing point	Checks the antifreeze protection of the heat transfer fluid.	
5899	Index of refraction at 20°C	Controls the freezing point using refractometry.	
6021	Particle counting	Determines the number of particles by size. Allows the correct size filter to be selected.	
6022 6023 6024	Viscosity $\leq 20^{\circ}\text{C}$ Viscosity $> 20^{\circ}\text{C}$ et $\leq 50^{\circ}\text{C}$ Viscosity $> 50^{\circ}\text{C}$ et $\leq 100^{\circ}\text{C}$	Determines charge loss and allows the correct size pump to be selected.	
6681	Elements content in aqueous environment		Identifies and quantifies the following elements: B-P-Zn-Fe-Cr-Si-Ba-Mg-Cu-Mo-Sn-Pb-Cd-Al-Ni-Ca-Sb-Ag-Na.
6682	Ferrography heat transfer fluids		Identifies and quantifies the particles present in the heat transfer fluid.
6895	Alcali analysis	Density/Composition/Freezing point.	



Heat transfer fluid analysis (continued)

Ref.	Products	Comments
<p>• HTF analysis kits APC kit: Periodic analysis of the heat transfer fluid and interpretation of the results by the Climalife laboratory.</p>		
878	APC A	Appearance + freezing point.
879	APC B	APC A + density at 20°C + reserve alkalinity (deterioration evaluation) + pH.
5381	APC D	APC B + GPC* quantiglycol test.
4960	Analyse CPG* quantiglycol	Quantitative information about the presence of MEG (Monoethylene glycol) or MPG (Monopropylene glycol) in a mixture.

* GPC: Gas Phase Chromatography.



878

Kit APC

Periodic control analysis for preventive maintenance of climatic circuits.

The APC kit is composed of a flask for sampling on-site and a sampling letter to send it to Climalife laboratory.





Services

- The Climalife approach
- Turnkey services
- Recovering, reclaiming, and waste treatment
- Regulatory background
- Engineering
- Authorisations and certifications



Services

Solutions for use and management of technical fluids

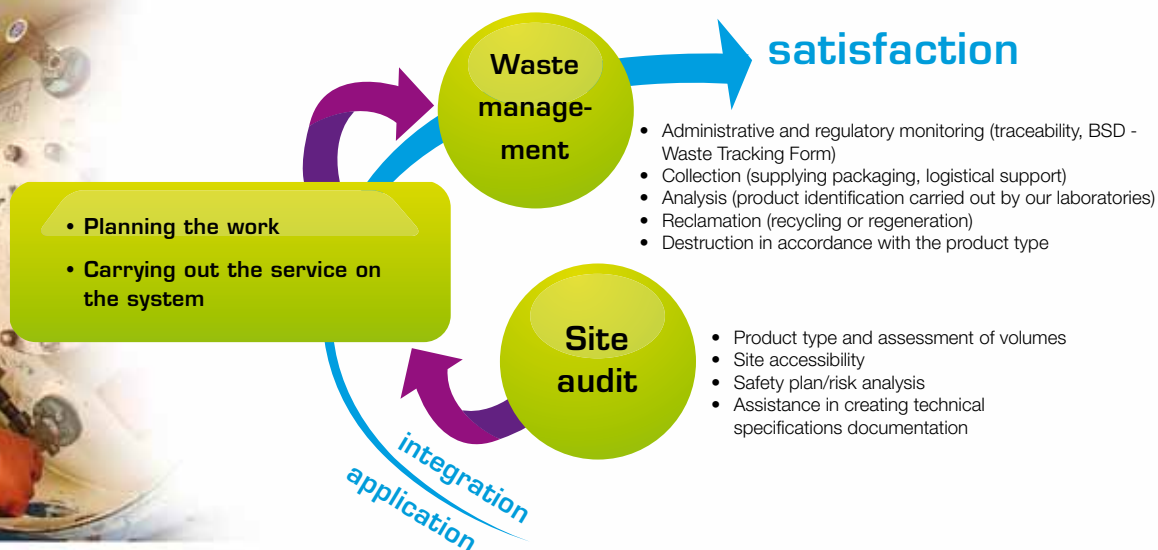


The Climalife approach

Given how diverse your activities in the field are, you find yourself needing to solve increasingly complex situations.

The challenge to achieve results and fulfil your obligations:

- Complex configuration of installations (high volume, special fluids, etc.),
- Need for special equipment (recovery unit, 70 bar pump, etc.) and occasional lack of available resources,
- Difficult logistics and access,
- Managing recovered fluids and controlling traceability.



Outsource your recovery services, profit from these advantages

✓ Turnkey solution for the service	➔	+	You can focus your efforts on your core business
✓ Planning for work in your country	➔		
✓ Expertise in the physico-chemical properties of the liquids	➔	+	Benefit from our expertise in liquids and specialist equipment for efficient recovery
✓ Our experts will share their knowledge with your teams	➔	+	You benefit from the knowledge and experience acquired by our chemical engineers
✓ Managing waste traceability (managing the BSD - Waste Tracking Form)	➔	+	You free yourself from operational and administrative constraints

Turnkey services

Our Industrial Services team is your **subcontractor** for conducting special operations on cooling, heating, and air conditioning installations, including: recovery, emptying, loading, cleaning, and more.

Ref.	Services	Comments
6768	Emptying refrigerants from installations	Recovering refrigerants, heat transfer fluids or secondary refrigerants, treating fluids according to current regulations, recovering unclean containers.
6769	Emptying heat transfer fluids from installations	
6749	Miscellaneous installation emptying	
7410	Emptying and refilling heat transfer fluids	Recovery and treatment in accordance with current regulations and loading at installation (bulk supplies, depositing, etc.).
7409	Miscellaneous emptying and refilling	
6771	Refilling installations with heat transfer fluids	Loading refrigerants or heat transfer fluids into installations: bulk supplies, depositing under special conditions, installation concentration (dosing).
6750	Miscellaneous installation refilling	
7412	Glycol - water system cleaning	For heating, cooling, or air conditioning installations: - Removing sludge from climate systems with the Thermonett® range of products. - Removing contaminants from refrigerant circuits with special products like Facilisolv or Nettogaz GC1. - Cleaning secondary refrigerant/heat transfer fluid circuits with the deoxidizer P and dispersing agent D, descaling with Duonett® D7.
7413	Cleaning refrigerant installation	
7414	Miscellaneous installation cleaning	
7415	Air conditioning water system cleaning	
7416	Heating water system cleaning	



Reclamation of recovered refrigerant fluids: on-demand treatment of the recovered product (for quantities above 300 kg) in order to offer performance equivalent to that of a virgin substance. After reclamation, the product is repackaged and made available to the client or stored at our industrial sites (storage contract). Offer subject to conditions.

Management and treatment of recovered fluids: receiving quantities of fluids at the plant and special management of various wastes, BSD¹ (waste transfer documents) traceability.

Regulatory maintenance of pressure equipment: Climalife handles the commissioning declarations, periodic inspection, and periodic requalification of your installations (tanks, pipes, applicable instruments, etc.) and issues a certificate:

- inspection and periodic requalification of pressure equipment,
- preventive maintenance of refrigerant storage and distribution equipment,
- periodic requalification of transportable pressure equipment (container retesting).

¹BSD: French regulatory Waste Tracking Form.

Services

Solutions for use and management of technical fluids



Recovering, reclaiming, and waste treatment

Climalife supplies containers, receives your fluids, and takes care of treating them.

• Recovery and treatment



Ref.	Refrigerant fluids and special fluids
	E.g.: halons. See p.15.
	Cleaning products
7109, 1128, 6464	See p.52.
	Secondary refrigerants/heat transfer fluids (for reclamation and/or destruction)
1124	Empty 20 litre can
1128	Empty 217 litre drum
6710	Empty 1000 litre container
6163	Heat transfer fluid destruction
4512	Package including provision of a 1000 litre container and destruction (e.g.: glycol)
7272	Destruction of Dispersing agent/Deoxidizer
	Oils (for destruction)
1125	Empty 30 litre drum
1126	Empty 60 litre drum
1128	Empty 217 litre drum
7272	Oil destruction
	NH₃ (for conversion)
757	88-litre NH ₃ recovery cylinder
758	930-litre NH ₃ recovery container
4639	NH ₃ conversion (container)
4638	NH ₃ conversion (cylinder)
	ALCALI (for destruction)
6286	800-Litre container of demineralised water
6125	140-Litre drum of demineralised water
-	Package including 800 L container of demineralised water + destruction
-	Package including 140 L container of demineralised water + destruction
7272	Destruction of water with ammonium hydroxide

• Reclaiming HCFCs, HFCs and NH₃

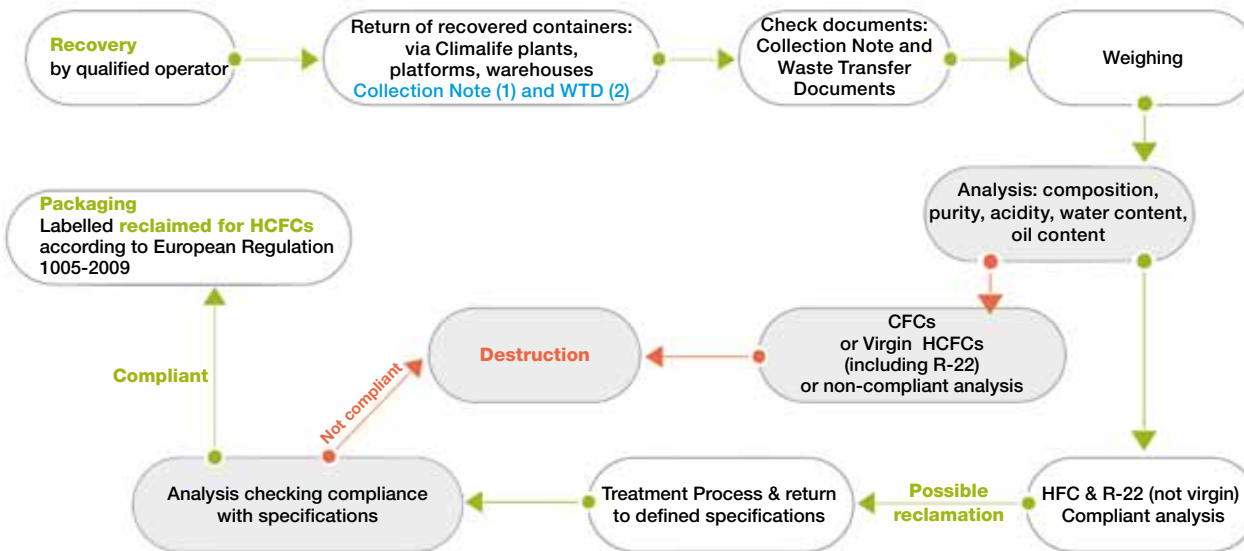
Reclaiming recovered HCFCs and HFCs is possible based on the results of the composition analysis carried out when the client's sample is received. (Sampling cylinders see p.68).

The conversion of NH₃ into Alkali is also possible under some conditions. Ask us for more information.

Our quality label and our specification guarantee you a reclaimed product with performance equivalent to that of virgin product. Analysis are always conducted by our laboratories during and after the reclamation cycle, guaranteeing the fluid's composition.



• Flow Diagram of fluids recovered for reclamation



- (1) Collection Note must be completed
 (2) Waste Transfer Document (WTD) for CFC, NH₃, Alkali and HCFCs and HFCs in particular, the waste creator (owner or qualified operator) needs a copy returned.

Most common European waste codes for filling out box 3 of the BSD / WTD

Product	European Code
Halogenated refrigerant	140601*
Ammonia	140603*
Ammonium hydroxide	140603*
Glycol water	130310*
Compressor oil	130208*
Halon	160504*
Halogenated solvent	140602*
Non-halogenated solvent	140603*

• Destruction of refrigerants

If reclaiming the recovered fluids is not possible, Climalife can destroy these fluids for you.

- CFCs: R-11, R-12, R-13, R-113, R-114, R-500, R-502, R-503,
- halons, NH₃,
- halogenated fluids not within specifications, which cannot be reclaimed (e.g.: HCFCs).

Services

Solutions for use and management of technical fluids



Regulatory background

• Waste Treatment: waste tracking form (Bordereau de suivi des déchets)

Waste handling, documentation and tracking requirements apply in all European Union countries.

Refrigerants, secondary refrigerants and heat transfer fluids which have been used are classified as hazardous waste and must be recovered by qualified personnel with relevant qualifications and permits. These must be treated or disposed of in an approved manner and in accordance with European and local regulations.

Contact your Climalife subsidiary for more detailed information.

• Regulatory maintenance: pressure equipment

The maintenance of pressure equipment is regulated by the PED 97/23/EC standard for refrigeration systems and pressure equipment in Europe: (Pressure equipment directive).



Engineering

• Design, implementation, and project management

Climalife has patented several processes, particularly for recovering and treating refrigerant fluids. These systems, designed for industrial uses, may be offered for smaller capacity installations.

• Designing and building specific systems for industrial sites

- storage: tanks, containers, cylinders,
- refrigerant fluid distribution machines,
- reclamation machines,
- recovery machines,
- filling stations,
- inversion plants,
- special transfer units,
- sealing test, leak detection,
- remote monitoring: storage management (tanks, containers, cylinders).

Our teams provide:

- coordination and project tracking all the way to installation on-site,
- the commissioning of an installation.

When we deliver the installation, we provide you with a complete fact file including:

- the description of the appliance,
- the operating manual,
- the testing certificates or reports,
- the documents about safety accessories and the adjustment reports,
- the preventive and regulatory maintenance schedule.





Authorisations and certifications

CREALIS, which is a wholly owned subsidiary of the Dehon Group, and specialises in services and engineering, is recognised as an Installation Classified for the Protection of the Environment, as referred to in law no. 76-664 of 19 July 1976.

• Industrial site at Bry-sur-Marne (France, region 94)

CREALIS carries out its activities under a prefectorially issued business licence number 2005/2795, dated 03/08/2005.

This business licence covers the following activities, which are listed in the nomenclature of classified installations under these articles:

- 1185-1-a: Chlorofluorocarbons, halons and other carbons and halogenated hydrocarbons. Refrigerant packaging and other applications such as foam manufacturing, etc. except dry cleaning for textile products endorsed by the 2564 section. The quantity likely to be in the installation is greater than 800 L.
- 1185-3: Chlorofluorocarbons, halons and other carbons and halogenated hydrocarbons. Reclaiming refrigerant and recycling halons at the treatment site.

CREALIS possess the Certificate of Ability N° 183545.

• Industrial site at Saint-Priest (France, region 69)

CREALIS carries out its activities under a business licence issued by the Prefecture of Rhône dated 8 November 2007.

This business licence covers the following activities, which are listed in the nomenclature of classified installations under these items:

- 1419-B-1: storage and packaging of ethylene oxide,
- 11136-A-1.b/136-A-2.b/1136-B.c: use and storage of ammonia,
- 1185-1a/1185-2.a/1185-3: packaging, storage and reclaiming CFCs, halons and other halogenated,
- 1412-2.a: storage of flammable liquefied gases (gases which are kept liquefied under pressure),
- 1414-1/1414-2: installing filling and distribution for flammable liquefied gases.

CREALIS is certified. ISO 9001: 2000. Certificate number: 1766421.



• **Industrial site at Sint-Niklaas (Belgium): Cogal Belgium**

On 5 December 2007 agreement (no. 9532/E 159) was renewed, authorising Cogal as a waste collector in the region of Flanders.

Vlarem II, class I, business licence, issued on 27 July 2000 (modifying the RGPT type licence of 29 June 1984), valid until 31 August 2011.

This licence covers, in particular, the following activities:

- storage and sorting collected waste,
- packing, reclaiming and storage of CFCs, HCFCs, HFCs and halons,
- formulating and storage of antifreezes, MEG and MPG based heat transfer fluids.

Since October 2004, those members of staff who work on external sites have been VCA certified.

The U.S Department of Transportation renewed its agreement (V040) for visual checking and requalification of DOT cylinders on 7 April 2008.

Cogal Belgium is certified ISO 9001: 2000.

Since January 2009, in accordance with article 7, paragraph 1 of EU regulation n°303/2008, Cogal Belgium, as an enterprise, is certified under number AIB/K126 to carry out installation, maintenance and repair activities on fixed refrigeration, air-conditioning and heat pump equipment containing some fluorinated greenhouse gases.

According to the same regulation, article 4, paragraph 2, all of our technicians are holder of a certificate category 1 which permits them to carry out the following activities:

- leak control,
- recovery,
- installation,
- maintenance or repair.

• **Industrial site at Bergen op Zoom (Netherlands)**

Eco Collect B.V was designated by the VROM minister as a CFCs, HCFCs, HFCs and halons collector on 26/08/2003:

CREALIS Nederland B.V carries out its activities under a licence issued on 17/11/2006 by the Noord-Brabant province: 1166535/1239026:

- storage and sorting collected waste,
- blending, packaging, reclamation and storage of CFCs, HCFCs, HFCs and halons.

CREALIS Nederland B.V. is certified ISO 9001: 2000.

Since April 2010, those members of staff who work on external sites have been VCA certified.



E-services

E-services to make everyday easier

www.climalife.dehon.com: a web tool for professionals

www.climalife.dehon.com is a European website that is constantly updated to improve its daily use, through:

- **A market section:** direct access to our specific solutions for industrial, commercial, housing and apartment building & service sectors.
- **A product section:** over 250 product references online, view technical specifications or safety data sheets.
- **A regulation section:** keep up with regulatory changes by sector and by country.
- **A technical reference section:** case studies and conversions.
- **An e-service module:** real-time package tracking, refrigerant consumption management recycled fluid quantity download, technical tools including calculation software, thermodynamic data, enthalpy diagrams, and more.





The client account contains a number of on-line services:

- **Packaging follow-up:**
 - optimize the management of your packages with our inventory tracking system by delivery location in real time and by date.
- **Product consumptions:**
 - check your consumption of refrigerants and heat transfer fluids in one click, and thus have the necessary data for your annual statement (French decree 737/2007).
- **Analysis results:**
 - access your oil analysis results (DPH) and download the last report.
- **Technical and practical tools at your disposal:**
 - the blue handbook, thermodynamics data and diagrams,
 - software and tips.

To find out more about this service, contact your local representative.

Length			
1 inch (in)	0,0254 m		
1 foot (ft)	12 inches	0,3048 m	
1 yard (yd)	3 feet	0,9143 m	
1 mile	1,760 yards	1609 m	
1 nautical mile	1852 m		
1 metre (m)	39,37 inches	3,28084 feet	1,09361 yard

Surface		
1 square inch	6,4516 cm ²	
1 square foot	0,0929 m ²	
1 square yard	0,8361 m ²	
1 square metre	1550 in ²	10,76391 ft ²

Mass		
1 ounce(oz)	28,349 gm	
1 pound (lb)	16 oz	0,4536 kg
1 US quintal	100 lbs	
1 centweight	112 lbs	
1 short ton(US)	2000 lbs	907,18 kg
1 long ton (G.-B.)	2240 lbs	1016,04 kg
1 quintal (q)	100 kg	
1 tonne (t)	1000 kg	

Volume		
1 cubic inch (cu in)	16,387064 cm ³	
1 cubic foot (cu ft)	0,028317 m ³	28,31685 dm ³
1 cubic yard (cu yd)	0,76455 m ³	
1 pint	0,568 l	
1 gallon-imp	4,546 l	
1 gallon (US gal)	3,78541 l ou dm ³	
1 cubic metre (m ³)	35,31467 cu ft	
1 cubic decimetre (dm ³)	0,26428 gal	
1 litre (l)	1 dm ³	

Density	
1 pound /cu.ft	0,016 kg /dm ³

Density	
1 cu.ft/lb	62,43 dm ³ /kg
1 US gallon/pound	8,3 dm ³ /kg

Converting units of measurement

Pressure				
1 inch of vacuum	25,4 mm Hg			
1 bar	100 kPa	750,06 Torr	1,0197 kg/cm ²	
1 atm	760 Torr	1,013 bar		
1 pound /sq. inch	0,0703 kg/cm ²	1 PSI	0,06895 bar	0,06805 atm

Flow rate		
1 m ³ /sec	35,31467 cu ft/sec	26,417 gal/sec
1 cu ft/sec	0,02831685 m ³ /sec	
1 gal/sec	0,0378541 m ³ /sec	

Energy-Heat measurement		
1 cal	4,18 Joules	
1 Btu	0,252 kcal	1055 Joules
1 Btu/lb.° F	1 kcal/kg.° C	
1 kcal	1 millithermie	
1 fg/hr	-1kcal/h	
1 kcal/hr	1,163 W	
1 Btu/hr	0,293 W	
1 ton (US)	3024 kcal/h	3512 W
1 ton (G.B.)	3340 Kcal/h	3878 W
1 Watt (thermic)	0,86 kcal/h	

° Fahrenheit = ° C x 9/5 + 32

° Celsius =(°F-32) x 5/9

° Celsius = T (° Kelvin) -273,15



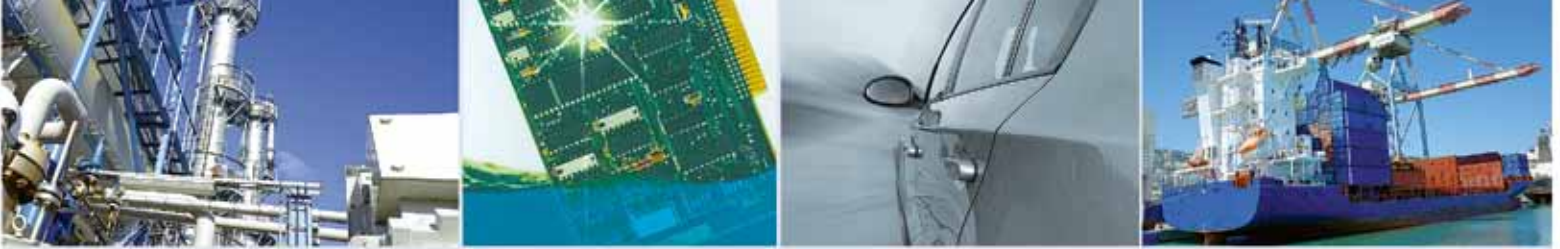
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Notes

Notes



Dehon Group - solutions to give you the lead



The Dehon Group is organized around three types of activity:

- Refrigeration, air-conditioning and heating - **Climalife**
- After-market automotive - **SMB Auto**
- High-tech - **Inventec**.

And:

Two production and logistics entities - Crealis and UMBS

One service entity for the Dehon Group - Gestimat

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