



Refrigerants designated by ASHRAE 34 or by ISO 817

June 2025	<i>This list is not intended to be complete or definitive. Please refer to the latest edition of ASHRAE Standard 34 and all published addenda or the latest edition of ISO 817 and its amendments for complete information on refrigerant designations and safety classifications.</i>
Number	Refrigerant Composition (Mass %)
Zeotropes	
400	R-12/114 (must be specified) (50.0/50.0) (60.0/40.0)
401A	R-22/152a/124 (53.0/13.0/34.0)
401B	R-22/152a/124 (61.0/11.0/28.0)
401C	R-22/152a/124 (33.0/15.0/52.0)
402A	R-125/290/22 (60.0/2.0/38.0)
402B	R-125/290/22 (38.0/2.0/60.0)
403A	R-290/22/218 (5.0/75.0/20.0)
403B	R-290/22/218 (5.0/56.0/39.0)
404A	R-125/143a/134a (44.0/52.0/4.0)
405A	R-22/152a/142b/C318 (45.0/7.0/5.5/42.5)
406A	R-22/600a/142b (55.0/4.0/41.0)
407A	R-32/125/134a (20.0/40.0/40.0)
407B	R-32/125/134a (10.0/70.0/20.0)
407C	R-32/125/134a (23.0/25.0/52.0)
407D	R-32/125/134a (15.0/15.0/70.0)
407E	R-32/125/134a (25.0/15.0/60.0)
407F	R-32/125/134a (30.0/30.0/40.0)
407G	R-32/125/134a (2.5/2.5/95.0)
407H	R-32/125/134a (32.5/15.0/52.5)
407I	R-32/125/134a (19.5/8.5/72.0)
408A	R-125/143a/22 (7.0/46.0/47.0)
409A	R-22/124/142b (60.0/25.0/15.0)
409B	R-22/124/142b (65.0/25.0/10.0)
410A	R-32/125 (50.0/50.0)
410B	R-32/125 (45.0/55.0)
411A	R-1270/22/152a) (1.5/87.5/11.0)
411B	R-1270/22/152a (3.0/94.0/3.0)
412A	R-22/218/143b (70.0/5.0/25.0)
413A	R-218/134a/600a (9.0/88.0/3.0)
414A	R-22/124/600a/142b (51.0/28.5/4.0/16.5)
414B	R-22/124/600a/142b (50.0/39.0/1.5/9.5)
415A	R-22/152a (82.0/18.0)
415B	R-22/152a (25.0/75.0)
416A	R-134a/124/600 (59.0/39.5/1.5)

417A	R-125/134a/600 (46.6/50.0/3.4)
417B	R-125/134a/600 (79.0/18.3/2.7)
417C	R-125/134a/600 (19.5/78.8/1.7)
418A	R-290/22/152a (1.5/96.0/2.5)
419A	R-125/134a/E170 (77.0/19.0/4.0)
419B	R-125/134a/E170 (48.5/48.0/3.5)
420A	R-134a/142b (88.0/12.0)
421A	R-125/134a (58.0/42.0)
421B	R-125/134a (85.0/15.0)
422A	R-125/134a/600a (85.1/11.5/3.4)
422B	R-125/134a/600a (55.0/42.0/3.0)
422C	R-125/134a/600a (82.0/15.0/3.0)
422D	R-125/134a/600a (65.1/31.5/3.4)
422E	R-125/134a/600a (58.0/39.3/2.7)
423A	R-134a/227ea (52.5/47.5)
424A	R-125/134a/600a/600/601a (50.5/47.0/0.9/1.0/0.6)
425A	R-32/134a/227ea (18.5/69.5/12)
426A	R-125/134a/600/601a (5.1/93.0/1.3/0.6)
427A	R-32/125/143a/134a (15.0/25.0/10.0/50.0)
427B	R-32/125/143a/134a (20.6/25.6/19.0/34.8)
427C	R-32/125/143a/134a (25.0/25.0/10.0/40.0)
428A	R-125/143a/290/600a (77.5/20.0/0.6/1.9)
429A	R-E170/152a/600a (60.0/10.0/30.0)
430A	R-152a/600a (76.0/24.0)
431A	R-290/152a (71.0/29.0)
432A	R-1270/E170 (80.0/20.0)
433A	R-1270/290 (30.0/70.0)
433B	R-1270/290 (5.0/95.0)
433C	R-1270/290 (25.0/75.0)
434A	R-125/143a/134a/600a
435A	R-E170/152a (80.0/20.0)
436A	R-290/600a (56.0/44.0)
436B	R-290/600a (52.0/48.0)
436C	R-290/600a (95.0/5.0)
437A	R-125/134a/600/601 (19.5/78.5/1.4/0.6)
438A	R-32/125/134a/600/601a (8.5/45.0/44.2/1.7/0.6)
439A	R-32/125/600a (50.0/47.0/3.0)
440A	R-290/134a/152a (0.6/1.6/97.8)
441A	R-170/290/600a/600 (3.1/54.8/6.0/36.1)
442A	R-32/125/134a/152a/227ea (31.0/31.0/30.0/3.0/5.0)
443A	R-1270/290/600a (55.0/40.0/5.0)
444A	R-32/152a/1234ze(E) (12.0/5.0/83.0)
444B	R-32/152a/1234ze(E) (41.5/10.0/48.5)
445A	R-744/134a/1234ze(E) (6.0/9.0/85.0)
446A	R-32/1234ze(E)/600 (68.0/29.0/3.0)
447A	R-32/125/1234ze(E) (68.0/3.5/28.5)

447B	R-32/125/1234ze (E) (68.0/8.0/24.0)
448A	R-32/125/1234yf/134a/1234ze(E) (26.0/26.0/20.0/21.0/7.0)
448B	R-32/125/1234yf/134a/1234ze(E) (21.0/21.0/20.0/31.0/7.0)
449A	R-32 /125 /1234yf /134a (24.3/24.7/25.3/25.7)
449B	R-32/125/1234yf/134a (25.2/24.3/23.2/27.3)
449C	R-32/125/1234yf/134a (20.0/20.0/31.0/29.0)
450A	R-134a/1234ze(E) (42.0/58.0)
451A	R-1234yf/134a (89.8/10.2)
451B	R-1234yf/134a (88.8/11.2)
452A	R-32/125/1234yf (11.0/59.0/30.0)
452B	R-32/125/1234yf (67.0/7.0/26.0)
452C	R-32/125/1234yf (12.5/61.0/26.5)
453A	R-32/125/134a/227ea/600/601a (20.0/20.0/53.8/5.0/0.6/0.6)
454A	R-32/1234yf (35.0/65.0)
454B	R-32/1234yf (68.9/31.1)
454C	R-32/1234yf (21.5/78.5)
455A	R-744/32/1234yf (3.0/21.5/75.5)
456A	R-32/134a/1234ze(E) (6.0/45.0/49.0)
457A	R-32/1234yf/152a (18.0/70.0/12.0)
457B	R-32/1234yf/152a (35.5/54.4/10.1)
457C	R-32/1234yf/152a(7.5/78.0/14.5)
458A	R-32/125/134a/227ea/236fa (20.5/4.0/61.4/13.5/0.6)
459A	R-32/1234yf/1234ze(E) (68.0/26.0/6.0)
459B	R-32/1234yf/1234ze(E) (21.0/69.0/10.0)
460A	R-32/125/134a/1234ze(E) (12.0/52.0/14.0/22.0)
460B	R-32/125/134a/1234ze(E) (28.0/25.0/20.0/27.0)
460C	R-32/125/134a/1234ze(E) (2.5/2.5/46.0/49.0)
461A	R-125/143a/134a/227ea/600a (55.0/5.0/32.0/5.0/3.0)
462A	R-32/125/143a/134a/600 (9.0/42.0/2.0/44.0/3.0)
463A	R-744/32/125/1234yf/134a (6/36/30/14/14)
464A	R-32/125/1234ze(E)/227ea (27/27/40/6)
465A	R-32/290/1234yf (21.0/7.9/71.1)
466A	R-32/125/131i (49.0/11.5/39.5)
467A	R-32/125/134a/600a (22.0/5.0/72.4/0.6)
468A	R-1132a/32/1234yf (3.5/21.5/75.0)
468B	R-1132a/32/1234yf (6.0/13.0/81.0)
468C	R-1132a/32/1234yf (6.0/42.0/52.0)
469A	R-744/32/125 (35.0/32.5/32.5)
470A	R-744/32/125/134a/1234ze(E)/227ea (10/17/19/7/44/3)
470B	R-744/32/125/134a/1234ze(E)/227ea (10/11.5/11.5/3/57/7)
471A	R-1234ze(E)/227ea/1336mzz(E) (78.7/4.3/17.0)
472A	R-744/32/134a (69.0/12.0/19.0)
472B	R-744/32/134a (58.0/10.0/32.0)
473A	R-1132a/23/744/125 (20/10/60/10)
474A	R-1132(E)/1234yf (23.0/77.0)
475A	R-1234yf/134a/1234ze(E) (45.0/43.0/12.0)

476A	R-134a/1234ze(E)/1336mzz(E) (10.0/78.0/12.0)
477A	R-1270/600a (84.0/16.0)
477B	R-1270/600a (38.0/62.0)
478A	R-744/32/125/134a/152a/1234ze(E)/227ea (7.0/26.0/15.0/15.0/3.0/30.0/4.0)
479A	R-1132(E)/32/1234yf (28.0/21.5/50.5)
480A	R-744/1234ze(E)/227ea (5.0/86.0/9.0)
481A	R-32/125/134a/1233zd(E)/601a (16.9/6.3/74.4/1.8/0.6)
482A	R-134a/1234ze(E)/1224yd(Z) (10.0/83.5/6.5)
483A	R-290/600 (15.0/85.0)
484A	R-1270/600 (12.0/88.0)
485A	R-1132a/744/32 (10.0/69.0/21.0)
486A	R-1234yf/134a/131i/1234ze(E) (21.9/6.3/38.0/33.8)
487A	R-170/1270 (20.0/80.0)
488A	R-32/1234yf/152a/1234ze(E) (6.0/50.0/3.0/41.0)
489A	R-50/1150/600 (1.5/22.0/76.5)
490A	R-1150/1270 (7.9/92.1)
491A	R-1132(E)/152a (35.0/65.0)
492A	R-1132a/32/152a/1234ze(E) (12.0/18.0/14.0/56.0)
493A	R-290/600a/600 (9.4/30.9 /59.7)
493B	R-290/600a/600 (11.8/29.1/59.1)
493C	R-290/600a/600 (15.1/28.3/56.6)
494A	R-744/152a/131i (4.0/60.0/36.0)
494B	R-744/152a/131i (4.0/38.0/58.0)
495A	R-32/1234yf/134a/1234ze(E) (4.5/76.0/9.0/10.5)
496A	R-14/23/116 (18.0/37.8/44.2)
497A	R-1270/131i (15.0/85.0)
498A	R-170/290/131i (7.0/8.0/85.0)
499A	R-170/290 (8.0/92.0)
4101A	R-32/152a/131i (11.0/30.5/58.5)
4102A	R-134a/1234ze(E)/1233zd(E) (10.0/60.0/30.0)

Azeotropes	
500	R-12/152a (73.8/26.2)
501	R-22/12 (75.0/25.0)
502	R-22/115 (48.8/51.2)
503	R-23/13 (40.1/59.9)
504	R-32/115 (48.2/51.8)
505	R-12/31 (78.0/22.0)
506	R-31/114 (55.1/44.9)
507A	R-125/143a (50.0/50.0)
508A	R-23/116 (39.0/61.0)
508B	R-23/116 (46.0/54.0)
509A	R-22/218 (44.0/56.0)
510A	R-E170/600a (88.0/12.0)
511A	R-290/E170 (95.0/5.0)

512A	R-134a/152a (5.0/95.0)
513A	R-1234yf/134a (56.0/44.0)
513B	R-1234yf/134a (58.5/41.5)
514A	R-1336mzz(Z)/1130(E) (74.7/25.3)
515A	R-1234ze (E)/227ea (88.0/12.0)
515B	R-1234ze (E)/227ea (91.1/8.9)
516A	R-1234yf/134a/152a (77.5/8.5/14.0)

Notes on refrigerant type: Any refrigerant containing CFC is categorised as a CFC. Similarly for HCFCs. All refrigerants containing ozone depleting substances are banned in the EU. Refrigerants categorised as HCs contain HCs and/or HC et al. Regulation 2024/573 applies to all refrigerants containing HFCs, HFOs and HCFOs listed in Annex I and II of the Regulation. PFCs listed in Annex I. The IFC (CF3I) is categorised as an ozone depleting substance (Annex II, not listed under the Montreal Protocol) under Ozone Regulation 2024/590 and is subject to reporting requirements.

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A sector group of Cefic

European Chemical Industry Council - Cefic aisbl
EU Transparency Register n° 61879142323-90

see notes on refrigerant type
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