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2018

YOUR HANDY GUIDE ON WHICH REFRIGERANTS ARE ACCEPTABLE AND UNACCEPTABLE IN WHAT APPLICATIONS.

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(888) 834-0233

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ACCEPTABLE AND UNACCEPTABLE REFRIGERANT USE

In the complex and fast-changing world of refrigerants, keeping up with what refrigerants are acceptable when and where can be a challenge. Our industry analysts have made that job a little easier with this updated guide for refrigerant use. Please note: (N) represents new end use, and * represents retrofit end use. Refrigerants listed in red are not allowed.

Snap Rule Date	2017	2018	2019	2020	2023	2024
Commercial Comfort Cooling Chiller: Reciprocating	R-1270 (Propylene)(N) & R-443A(N), Ammonia(N), HFC-134A(N)*, R-401A(N)*, R-401B(N)*, R-410A(N), R-407C(N)*, R-404A(N)*, R-507A(N)*, RS-44(N)*, R-513A (Opteon XP 10) (N)*, HFO-1234ze(N), HFO-1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene)(N), HFO-1336mzz(Z)/ dichloroethylene blend (R-514A) (N)*,	Ammonia(N), HFC-134A(N)*, R-401A(N)*, R-401B(N)*, R-410A(N), R-407C(N)*, R-404A(N)*, R-507A(N)*, RS-44(N)*, R-513A (Opteon XP 10) (N)*, HFO-1234ze(N), HFO-1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene)(N), HFO-1336mzz(Z)/dichloroethylene blend (R-514A)(N)*	Ammonia(N), HFC-134A(N)*, R-401A(N)*, R-401B(N)*, R-410A(N), R-407C(N)*, R-404A(N)*, R-507A(N)*, RS-44(N)*, R-513A (Opteon XP 10) (N)*, HFO-1234ze(N), HFO-1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene)(N), HFO-1336mzz(Z)/dichloroethylene blend (R-514A)(N)*	Ammonia(N), HFC-134A(N)*, R-401A(N)*, R-401B(N)*, R-410A(N), R-407C(N)*, R-404A(N)*, R-507A(N)*, RS-44(N)*, R-513A (Opteon XP 10) (N)*, HFO-1234ze(N), HFO-1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene)(N), HFO-1336mzz(Z)/dichloroethylene blend (R-514A)(N)*	Ammonia(N), HFC-134A(N)*, R-401A(N)*, R-401B(N)*, R-410A(N), R-407C(N)*, R-404A(N)*, R-507A(N)*, RS-44(N)*, R-513A (Opteon XP 10) (N)*, HFO-1234ze(N), HFO-1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene)(N), HFO-1336mzz(Z)/dichloroethylene blend (R-514A)(N)*	HFC-134A(N), FOR12A(N), FOR12(B), HFC-227ea(N), R-125/R-134a/R-600a (28.1/70.0/1.9)(N), R-125/R-290/R-134a/R-600a (55.0/1.0/42.5/1.5) (N), R-404A(N), R-407C(N), R-410A(N). R-410B(N), R-417A(N), R-421A(N), R-422B(N), R-422C(N), R-422D(N), R-424A(N), R-434A(N), R-437A(N), R-438A(N), R-507(N), R-507A(N), RS-44 (2003 formulation)(N), SP34E(N), THR-03(N), Ammonia(N), R-401A(N)*, R-401B(N)*, R-513A (Opteon XP 10) (N)*, HFO-1234ze(N), HFO-1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene) (N), HFO-1336mzz(Z)/dichloroethylene blend (R-514A)(N)*, HFC-134A*, FOR12A*, FOR12B*, R-125/R-134a/R-600a (28.1/70.0/1.9)*, R-125/R-290/R-134a/R-600a (55.0/1.0/42.5/1.5)*, R-404A*, R-407C*, R-417A*, R-421A*, R-422B*, R-422C*, R-422D*, R-424A*, R-434A*, R-437A*, R-438A*, R-507*, R-507A*, RS-44 (2003) formulation*, SP34E*, THR-03*
Commercial Comfort Cooling Chiller: Centrifugal	R-1270(N) (Propylene) & R-443A(N); R-123(N)*, HFC-134A(N)*, HFC-236fa(N)*, Ammonia(N), R-410A(N),R-410B(N), R-417A(N)*, R-421A(N)*, R-422B(N)*, R-422C(N)*, R-422D(N)*, R-424A(N)*, R-434A(N)*, R-507(N), R-407C(N)*, R-404A(N)*, R-438A(N)*, R-450A(N)*, R-507A(N)*, RS-44(N)*, R-513A (Opteon XP 10)(N)*, R-744(N), HFO-1336mzz(Z)/trans-1,2-dichloroethylene blend (74.7/ 25.3) (R-514A)(N)*, HFO-1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene)(N), Trans-1-chloro-3,3,3-trifluoroprop-1-ene (Solstice 1233zd(e) - Solstice N12) (N)	R-123(N)*, HFC-134A(N)*, HFC-236fa(N)*, Ammonia(N), R-410A(N), R-410B(N), R-417A(N)*, R-421A(N)*, R-422B(N)*, R-422C(N)*, R-422D(N)*, R-424A(N)*, R-434A(N)*, R-507(N)*, R-407C(N)*, R-404A(N)*, R-438A(N)*, R-450A(N)*, R-507A(N)*, RS-44(N)*, R-513A (Opteon XP 10) (N)*, R-744(N), HFO-1336mzz(Z)/ trans-1,2- dichloroethylene blend (74.7/ 25.3) (R-514A)(N)*, HFO-1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene)(N), Trans-1-chloro-3,3,3-trifluoroprop-1-ene (Solstice 1233zd(e) - Solstice N12) (N)	R-123(N)*, HFC-134A(N)*, HFC-236fa(N)*, Ammonia(N), R-410A(N), R-410B(N), R-417A(N)*, R-421A(N)*, R-422B(N)*, R-422C(N)*, R-422D(N)*, R-424A(N)*, R-434A(N)*, R-507(N)*, R-407C(N)*, R-404A(N)*, R-438A(N)*, R-450A(N)*, R-507A(N)*, RS-44(N)*, R-513A (Opteon XP 10) (N)*, R-744(N), HFO-1336mzz(Z)/ trans-1,2- dichloroethylene blend (74.7/ 25.3) (R-514A)(N)*, HFO-1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene)(N), Trans-1-chloro-3,3,3-trifluoroprop-1-ene (Solstice 1233zd(e) - Solstice N12) (N)	R-123(N)*, HFC-134A(N)*, HFC-236fa(N)*, Ammonia(N), R-410A(N), R-410B(N), R-417A(N)*, R-421A(N)*, R-422B(N)*, R-422C(N)*, R-422D(N)*, R-424A(N)*, R-434A(N)*, R-507(N)*, R-407C(N)*, R-404A(N)*, R-438A(N)*, R-450A(N)*, R-507A(N)*, RS-44(N)*, R-513A (Opteon XP 10) (N)*, R-744(N), HFO-1336mzz(Z)/ trans-1,2- dichloroethylene blend (74.7/ 25.3) (R-514A)(N)*, HFO-1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene)(N), Trans-1-chloro-3,3,3-trifluoroprop-1-ene (Solstice 1233zd(e) - Solstice N12) (N)	R-123(N)*, HFC-134A(N)*, HFC-236fa(N)*, Ammonia(N), R-410A(N), R-410B(N), R-417A(N)*, R-421A(N)*, R-422B(N)*, R-422C(N)*, R-422D(N)*, R-424A(N)*, R-434A(N)*, R-507(N)*, R-407C(N)*, R-404A(N)*), R-438A(N)* (see 2024), R-450A(N)*, R-507A(N)* (see 2024), RS-44(N)*, R-513A (Opteon XP 10) (N)*, R-744(N), HFO-1336mzz(Z)/ trans-1,2- dichloroethylene blend (74.7/ 25.3) (R-514A)(N)*, HFO-1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene)(N), Trans-1-chloro-3,3,3-trifluoroprop-1-ene (Solstice 1233zd(e) - Solstice N12) (N)	FOR12A(N)*, FOR12B(N)*, HFC-134A(N)*, HFC-227ea(N), HFC-236fa(N)*, HFC-425fa(N)*, R-125/R-134a/R-600a (28.1/70.0/1.9)(N)*, R-125/R-290/R-134a/R-600a (55.0/1.0/42.5/1.5)(N)*, R-404A(N)*, R-407C(N)*, R-410A(N), R-410B(N), R-417A(N)*, R-421A(N)*, R-422B(N)*, R-422C(N)*, R-422D(N)*, R-423A(N)*, R-424A(N)*, R-434A(N)*, R-438A(N)*, R-507(N)*, R-507A(N)*, RS-4 (2003 formulation)(N)*, THR-03(N), R-123(N)*; Ammonia(N), R-450A(N)*, R-513A (Opteon XP 10) (N)*, R-744(N), HFO-1336mzz(Z)/ trans-1,2- dichloroethylene blend (74.7/ 25.3) (R-514A)(N)*, HFO-1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene) (N), Trans-1-chloro-3,3,3-trifluoroprop-1-ene (Solstice 1233zd(e) - Solstice N12) (N)

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Cold Storage Warehouse	R-1270(N) (Propylene) & R-443A(N); R-448A(N)*, R-449A(N)*, R-449B(N)*, R-453A(N)*; HFC-227ea(N), R-125/290/134a/600a (55.0/1.0/42.5/1.5)(N)*, R-401A(N), R-401B(N)*, R-404A(N)*, R-407A(N)*, R-407B(N)*, R-410A(N), R-410B(N), R-417A(N)*, R-421A(N)*, R-421B(N)*, R-422A(N)*, R-422B(N)*, R-422C(N)*, R-422D(N)*, R-423A(N)*, R-424A(N)*, R-428A(N)*, R-434A(N)*, R-438A(N)*, R-507(N)*, R-507A(N)*, and RS-44 (2003 composition)(N)*, R-450A(N)*, R-744(N), THR02(N)*, HFC-134a(N)*, R-407 (C&F)(N)*, R-13A (Opteon XP)(N)*	R-448A(N)*, R-449A(N)*, R-449B(N)*, R-453A(N)*; HFC-227ea(N), R-125/290/134a/600a (55.0/1.0/42.5/1.5)(N)*, R-401A(N), R-401B(N)*, R-404A(N)*, R-407A(N)*, R-407B(N)*, R-410A(N), R-410B(N), R-417A(N)*, R-421A(N)*, R-421B(N)*, R-422A(N)*, R-422B(N)*, R-422C(N)*, R-422D(N)*, R-423A(N)*, R-424A(N)*, R-428A(N)*, R-434A(N)*, R-438A(N)*, R-507(N)*, R-507A(N)*, and RS-44 (2003 composition)(N)*, R-450A(N)*, R-744(N), THR02(N)*, HFC-134a(N)*, R-407 (C&F)(N)*, R-513A (Opteon XP)(N)*	R-448A(N)*, R-449A(N)*, R-449B(N)*, R-453A(N)*; HFC-227ea(N), R-125/290/134a/600a (55.0/1.0/42.5/1.5)(N)*, R-401A(N), R-401B(N)*, R-404A(N)*, R-407A(N)*, R-407B(N)*, R-410A(N), R-410B(N), R-417A(N)*, R-421A(N)*, R-421B(N)*, R-422A(N)*, R-422B(N)*, R-422C(N)*, R-422D(N)*, R-423A(N)*, R-424A(N)*, R-428A(N)*, R-434A(N)*, R-438A(N)*, R-507(N)*, R-507A(N)*, and RS-44 (2003 composition)(N)*, R-450A(N)*, R-744(N), THR02(N)*, HFC-134a(N)*, R-407 (C&F)(N)*, R-513A (Opteon XP)(N)*	R-448A(N)*, R-449A(N)*, R-449B(N)*, R-453A(N)*; HFC-227ea(N), R-125/290/134a/600a (55.0/1.0/42.5/1.5)(N)*, R-401A(N), R-401B(N)*, R-404A(N)*, R-407A(N)*, R-407B(N)*, R-410A(N), R-410B(N), R-417A(N)*, R-421A(N)*, R-421B(N)*, R-422A(N)*, R-422B(N)*, R-422C(N)*, R-422D(N)*, R-423A(N)*, R-424A(N)*, R-428A(N)*, R-434A(N)*, R-438A(N)*, R-507(N)*, R-507A(N)*, and RS-44 (2003 composition)(N)*, R-450A(N)*, R-744(N), THR02(N)*, HFC-134a(N)*, R-407 (C&F)(N)*, R-513A (Opteon XP)(N)*	New: HFC-227ea, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-423A, R-424A, R-428A, R-434A, R-438A, R-507A, and RS-44 (2003 composition); R-448A(N)*, R-449A(N)*, R-449B(N)*, R-453A(N)*; R-125/290/134a/600a (55.0/1.0/42.5/1.5)*, R-401A(N), R-401B(N)*, R-404A*, R-407A*, R-407B*, R-417A*, R-421A*, R-421B*, R-422A*, R-422B*, R-422C*, R-422D*, R-423A*, R-424A*, R-428A*, R-434A*, R-438A*, R-450A(N)*, R-507*, R-507A*, and RS-44 (2003 composition)*, R-450A(N)*, R-744(N), THR02(N)*, HFC-134a(N)*, R-407 (C&F)(N)*, R-513A (Opteon XP)(N)*	R-448A(N)*, R-449A(N)*, R-449B(N)*, R-453A(N)*; R-125/290/134a/600a (55.0/1.0/42.5/1.5)*, R-401A(N), R-401B(N)*, R-404A*, R-407A*, R-407B*, R-417A*, R-421A*, R-421B*, R-422A*, R-422B*, R-422C*, R-422D*, R-423A*, R-424A*, R-428A*, R-434A*, R-438A*, R-450A(N)*, R-507*, R-507A*, and RS-44 (2003 composition)*, R-450A(N)*, R-744(N), THR02(N)*, HFC-134a(N)*, R-407 (C&F)(N)*, R-513A (Opteon XP)(N)*
Retail Food (Remote Condensing Units)	R-407H(N)*, R-442A(N)*, R-452A(N)*, R-452C(N)*, R-453A(N)*, R-458A(N)*; R-404(N), R-401A(N), R-401B(N), R-410A(N), R-410B(N), R-407C(N)*, R-424A(N)*, R-426A(N)*, R-427A*, R-407A(N)*, R-407B(N), R-407C(N)*, R-407F(N)*, R-407H(N)*, R-448A(N)*, R-449A (Opteon XP 40)(N)*, R-449B(N)*, R-450A(N)*, R-507(N), R-507A(N), R-513A (Opteon XP)(N)*, RS-44(N)*	New Equipment: HFC-227ea*, R-404A*, R-407B*, R-421B*, R-422A(N)*, R-422C(N)*, R-422D*, R-428A*, R-434A*, & R-507A* allowed but be weary; see index. R-R-401A(N), 401B(N), R-410A(N), R-410B(N), 424A(N)*, R-426A(N)*, R-427A*, S-407A(N)*, R-407C(N)*, R-407F(N)*, 407H(N)*, R-448A(N)*, R-449A (Opteon XP 40)(N)*, R-450A(N)*, R-513A (Opteon XP 10)(N)*, RS-44(N)*	R-401A(N), R-401B(N), R-410A(N), R-410B(N), R-424A(N)*, R-426A(N)*, R-427A*, R-407A(N)*R-407C(N)*, R-407F(N)*, R-407H(N)*, R-448A(N)*, R-449A (Opteon XP 40) (N)*, R-449B(N)*, R-450A(N)*, R-513A (Opteon XP 10), RS-44(N)*	R-401A(N), R-401B(N), R-410A(N), R-410B(N), R-424A(N)*, R-426A(N)*, R-427A*, R-407A(N)*, R-407C(N)*, R-407F(N)*, R-407H(N)*, R-448A(N)*, R-449A (Opteon XP 40) (N)*, R-449B(N)*, R-450A(N)*, R-513A (Opteon XP 10)(N)*, RS-44(N)*	R-401A(N), R-401B(N), R-410A(N), R-410B(N), R-424A(N)*, R-426A(N)*, R-427A*, R-407A(N)*R-407C(N)*, R-407F(N)*, R-407H(N)*, R-448A(N)*, R-449A (Opteon XP 40) (N)*, R-449B(N)*, R-450A(N)*, R-513A (Opteon XP 10)(N)*, RS-44(N)*	R-401A(N), R-401B(N), R-410A(N), R-410B(N), R-424A(N)*, R-426A(N)*, R-427A*, R-407A(N)*R-407C(N)*, R-407F(N)*, R-407H(N)*, R-448A(N)*, R-449A (Opteon XP 40) (N)*, R-449B(N)*, R-450A(N)*, R-513A (Opteon XP 10)(N)*, RS-44(N)*

Snap Rule Date	2017	2018	2019	2020	2023	2024
Retail Food (Stand-Alone Equipment)	HFC-134a(N)*, R-401A(N), R-401B(N), R-404A(N), R-407B(N)*, R-407C(N)*, R-417A(N)*, R-407F(N)*, R-417C* (Hot Shot 2), R-426A(N)*, R-427A(N)*, R-600a(N) (Isobutane) [with use conditions], R-410A(N), R-290(N) (Propane) [with use conditions], R-441A(N) [with use conditions], R-448A(N)* [with use conditions], R-449A(N)* (Opteon XP 40) [with use conditions], R-449B(N)*, R-507A(N)*, R-513A(N)* (Opteon XP 10) [with use conditions], RS-44(N)*	HFC-134a(N)*, R-401A(N), R-401B(N), R-404A(N), R-407B(N)*, R-407C(N)*, R-407F(N)*, R-417A(N)*, R-417C* (Hot Shot 2), R-426A(N)*, R-427A(N)*, R-600a(N) (Isobutane) [with use conditions], R-410A(N), R-290(N) (Propane) [with use conditions], R-441A(N) [with use conditions], R-448A(N)* [with use conditions], R-449A(N)* (Opteon XP 40) [with use conditions], R-449B(N)*, R-507A(N)*, R-513A(N)* (Opteon XP 10) [with use conditions], RS-44(N)*	New: FOR12A, FOR12B, HFC-134a, HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03 **be weary; see* index *for more info*; HFC-134a*, R-401A(N), R-401B(N), R-407B*, R-407C*, R-407F*, R-417A*, R-417C* (Hot Shot 2), R-426A*, R-427A(N)*, R-600a(N) (Isobutane) [with use conditions], R-290(N) (Propane) [with use conditions], R-441A(N) [with use conditions], R-448A(N)* [with use conditions], R-449A(N)* (Opteon XP 40) [with use conditions], R-449B(N)*, R-507A*, R-513A(N)* (Opteon XP 10) [with use conditions], RS-44*	New: FOR12A, FOR12B, HFC-134a, HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03 *be weary; see index; HFC-134a*, R-401A(N), R-401B(N), R-407B*, R-407C*, S-407F*, R-417A*, R-417C* (Hot Shot 2), R-426A*, R-427A(N)*, R-600a(N)(Isobutane) [with use conditions], R-290(N) (Propane) [with use conditions], R-441A(N) [with use conditions], R-448A(N)* [with use conditions], R-449A(N)* (Opteon XP 40) [with use conditions], R-449B(N)* [with use conditions], R-507A*, R-513A (Opteon XP 10)(N)* [with use conditions], RS-44*	HFC-134a*, R-401A(N), R-401B(N), R-407B*, R-407C*, R-407F*, R-417A*, R-417C* (Hot Shot 2), R-426A*, R-427A(N)*, R-600a(N) (Isobutane) [with use conditions], R-290(N) (Propane) [with use conditions], R-441A(N) [with use conditions], R-448A(N)* [with use conditions], R-449A(N)* (Opteon XP 40) [with use conditions], R-449B(N)* [with use conditions], R-507A*, R-513A(N)* (Opteon XP 10) [with use conditions], RS-44*	HFC-134a*, R-401A(N), R-401B(N), R-407B*, R-407C*, R-407F*, R-417A*, R-417C* (Hot Shot 2), R-426A*, R-427A(N)*, R-600a(N) (Isobutane) [with use conditions], R-290(N) (Propane) [with use conditions], R-441A(N) [with use conditions], R-448A(N)* [with use conditions], R-449A(N)* (Opteon XP 40) [with use conditions], R-449B(N)* [with use conditions], R-507A*, R-513A(N)* (Opteon XP 10) [with use conditions], RS-44*
Refrigerated Transport	R-401A(N), R-401B(N), R-404A(N)*, R-410A(N), R-407C(N)*, R-407F(N)*, R-417A (ISCEON 59, NU-22) (N)*, R-448A(N)*, R-449A (Opteon XP 40)(N)*, R-449B(N)*, R-450A(N)*, R-452A(N)*, R-452C(N)*, R-507A(N)*, R-513A (Opteon XP 10)(N)*, RS-44(N)*, HFC-134A(N)*	R-401A(N), R-401B(N), R-404A(N)*, R-410A(N), R-407C(N)*, R-407F(N)*, R-417A (ISCEON 59, NU-22) (N)*, R-448A(N)*, R-449A (Opteon XP 40)(N)*, R-449B(N)*, R-450A(N)*, R-452A(N)*, R-452C(N)*, R-507A(N)*, R-513A (Opteon XP 10)(N)*, RS-44(N)*, HFC-134A(N)*	R-401A(N), R-401B(N), R-404A(N)*, R-410A(N), R-407C(N)*, R-407F(N)*, R-417A (ISCEON 59, NU-22) (N)*, R-448A(N)*, R-449A (Opteon XP 40)(N)*, R-449B(N)*, R-450A(N)*, R-452A(N)*, R-452C(N)*, R-507A(N)*, R-513A (Opteon XP 10)(N)*, RS-44(N)*, HFC-134A(N)*	R-401A(N), R-401B(N), R-404A(N)*, R-410A(N), R-407C(N)*, R-407F(N)*, R-417A (ISCEON 59, NU-22) (N)*, R-448A(N)*, R-449A (Opteon XP 40)(N)*, R-449B(N)*, R-450A(N)*, R-452A(N)*, R-452C(N)*, R-507A(N)*, R-513A (Opteon XP 10)(N)*, RS-44(N)*, HFC-134A(N)*	R-401A(N), R-401B(N), R-404A(N)*, R-410A(N), R-407C(N)*, R-407F(N)*, R-417A (ISCEON 59, NU-22) (N)*, R-448A(N)*, R-449A (Opteon XP 40)(N)*, R-449B(N)*, R-450A(N)*, R-452A(N)*, R-452C(N)*, R-507A(N)*, R-513A (Opteon XP 10)(N)*, RS-44(N)*, HFC-134A(N)*	R-401A(N), R-401B(N), R-404A(N)*, R-410A(N), R-407C(N)*, R-407F(N)*, R-417A (ISCEON 59, NU-22) (N)*, R-448A(N)*, R-449A (Opteon XP 40)(N)*, R-449B(N)*, R-450A(N)*, R-452A(N)*, R-452C(N)*, R-507A(N)*, R-513A (Opteon XP 10)(N)*, RS-44(N)*, HFC-134A(N)*

Snap Rule Date	2017	2018	2019	2020	2023	2024
Residential & Light Commercial AC & Heat Pumps	*HCs R-1150 (ethylene), R-170 (ethane), R-1270(N) (propylene), R-290 (propane)*, R- 50 (methane), R-600 (n-butane), R-600a (isobutane), R-601 (n-pentane), and R- 601a (isopentane); the HC blends R- 433A, R-433B, R-433C, R-436A, R-436B, R-441A, and R-443A(N); and the refrigerant blends R-429A, R-430A, R-431A, R- 432A, R-435A, and R-511A, (See SNAP Rule 21 for more information on these unacceptable substitutes); HFC-32 (Difluoromethane) (N) [with use conditions, charge size limits], R-404A(N)*, R-407A(N)*, R-407C(N)*, R-407F(N)*, R-410A(N), R-421A(N)*, R-427A*, R-507A(N)*, R-417C (Hot Shot 2)*, R-125/R-134a/R-600a (28.1/70.0/1.9) (N)*, R-125/R-290/R-134a/R-600a (55.0/1.0/42.5/1.5)(N)*, R-417A(N)*, R-422B(N)*, R-422C(N)*, R-422D(N)*, R-424A(N)*, R- 427A*, R-434A(N)*, R-437A(N)*, R-438A(N)*, R-441A(N) [with use conditions, charge size limits], RS-44 (2003 formulation) (N)*, R-134a(N)*, R-290(N) [with use conditions, charge size limits], R-458A*	HFC-32 (Difluoromethane) (N) [with use conditions, charge size limits], R-404A(N)*, R-407A(N)*, R-407C(N)*, R-407F(N)*, R-410A(N), R-421A(N)*, R-427A*, R-507A(N)*, R-417C (Hot Shot 2)*, R-125/R-134a/R-600a (28.1/70.0/1.9) (N)*, R-125/R-290/R-134a/R-600a (55.0/1.0/42.5/1.5)(N)*, R-417A(N)*, R-422B(N)*, R-422C(N)*, R-422D(N)*, R-424A(N)*, R- 427A*, R-434A(N)*, R-437A(N)*, R-438A(N)*, R-441A(N) [with use conditions, charge size limits], RS-44 (2003 formulation) (N)*, R-134a(N)*, R-290(N) [with use conditions, charge size limits], R-458A*	HFC-32 (Difluoromethane) (N) [with use conditions, charge size limits], R-404A(N)*, R-407A(N)*, R-407C(N)*, R-407F(N)*, R-410A(N), R-421A(N)*, R-427A*, R-507A(N)*, R-417C (Hot Shot 2)*, R-125/R-134a/R-600a (28.1/70.0/1.9) (N)*, R-125/R-290/R-134a/R-600a (55.0/1.0/42.5/1.5)(N)*, R-417A(N)*, R-422B(N)*, R-422C(N)*, R-422D(N)*, R-424A(N)*, R- 427A*, R-434A(N)*, R-437A(N)*, R-438A(N)*, R-441A(N) [with use conditions, charge size limits], RS-44 (2003 formulation) (N)*, R-134a(N)*, R-290(N) [with use conditions, charge size limits], R-458A*	HFC-32 (Difluoromethane) (N) [with use conditions, charge size limits], R-404A(N)*, R-407A(N)*, R-407C(N)*, R-407F(N)*, R-410A(N), R-421A(N)*, R-427A*, R-507A(N)*, R-417C (Hot Shot 2)*, R-125/R-134a/R-600a (28.1/70.0/1.9) (N)*, R-125/R-290/R-134a/R-600a (55.0/1.0/42.5/1.5)(N)*, R-417A(N)*, R-422B(N)*, R-422C(N)*, R-422D(N)*, R-424A(N)*, R- 427A*, R-434A(N)*, R-437A(N)*, R-438A(N)*, R-441A(N) [with use conditions, charge size limits], RS-44 (2003 formulation) (N)*, R-134a(N)*, R-290(N) [with use conditions, charge size limits], R-458A*	HFC-32 (Difluoromethane) (N) [with use conditions, charge size limits], R-404A(N)*, R-407A(N)*, R-407C(N)*, R-407F(N)*, R-410A(N), R-421A(N)*, R-427A*, R-507A(N)*, R-417C (Hot Shot 2)*, R-125/R-134a/R-600a (28.1/70.0/1.9) (N)*, R-125/R-290/R-134a/R-600a (55.0/1.0/42.5/1.5)(N)*, R-417A(N)*, R-422B(N)*, R-422C(N)*, R-422D(N)*, R-424A(N)*, R- 427A*, R-434A(N)*, R-437A(N)*, R-438A(N)*, R-441A(N) [with use conditions, charge size limits], RS-44 (2003 formulation) (N)*, R-134a(N)*, R-290(N) [with use conditions, charge size limits], R-458A*	HFC-32 (Difluoromethane) (N) [with use conditions, charge size limits], R-404A(N)*, R-407A(N)*, R-407C(N)*, R-407F(N)*, R-410A(N), R-421A(N)*, R-427A*, R-507A(N)*, R-417C (Hot Shot 2)*, R-125/R-134a/R-600a (28.1/70.0/1.9) (N)*, R-125/R-290/R-134a/R-600a (55.0/1.0/42.5/1.5)(N)*, R-417A(N)*, R-422B(N)*, R-422C(N)*, R-422D(N)*, R-424A(N)*, R- 427A*, R-434A(N)*, R-437A(N)*, R-438A(N)*, R-441A(N) [with use conditions, charge size limits], RS-44 (2003 formulation) (N)*, R-134a(N)*, R-290(N) [with use conditions, charge size limits], R-458A*
IPR Refrigeration	R-123(N)*, HFC-134A(N)*, R-401A(N) R-401B(N), Hydrocarbon Blend A(N)*, Hydrocarbon Blend B(N)* R-404A(N)*, R-410A(N), R-407C(N)*, RS-24(N)*, NU-22(N)*, RS-44(N)*, R-513 (Opteon XP 10)(N)*, R-448A(N)*, R-449A(N)*, R-449B(N)*, R-450A(N)*, R-453A(N)*, R-458A(N)*	R-123(N)*, HFC-134A(N)*, R-401A(N) R-401B(N), Hydrocarbon Blend A(N)*, Hydrocarbon Blend B(N)* R-404A(N)*, R-410A(N), R-407C(N)*, RS-24(N)*, NU-22(N)*, RS-44(N)*, R-513 (Opteon XP 10)(N)*, R-448A(N)*, R-449A(N)*, R-449B(N)*, R-450A(N)*, R-453A(N)*, R-458A(N)*	R-123(N)*, HFC-134A(N)*, R-401A(N) R-401B(N), Hydrocarbon Blend A(N)*, Hydrocarbon Blend B(N)*, R-404A(N)*, R-410A(N), R-407C(N)*, RS-24(N)*, NU-22(N)*, RS-44(N)*, R-513 (Opteon XP 10)(N)*, R-448A(N)*, R-449A(N)*, R-449B(N)*, R-450A(N)*, R-453A(N)*, R-458A(N)*	R-123(N)*, HFC-134A(N)*, R-401A(N) R-401B(N), Hydrocarbon Blend A(N)*, Hydrocarbon Blend B(N)*, R-404A(N)*, R-410A(N), R-407C(N)*, RS-24(N)*, NU-22(N)*, RS-44(N)*, R-513 (Opteon XP 10)(N)*, R-448A(N)*, R-449A(N)*, R-449B(N)*, R-450A(N)*, R-453A(N)*, R-458A(N)*	R-123(N)*, HFC-134A(N)*, R-401A(N), R-401B(N), Hydrocarbon Blend A(N)*, Hydrocarbon Blend B(N)* R-404A(N)*, R-410A(N), R-407C(N)*, RS-24(N)*, NU-22(N)*, RS-44(N)*, R-513 (Opteon XP 10)(N)*, R-448A(N)*, R-449A(N)*, R-449B(N)*, R-450A(N)*, R-453A(N)*, R-458A(N)*	R-123(N)*, HFC-134A(N)*, R-401A(N), R-401B(N), Hydrocarbon Blend A(N)*, Hydrocarbon Blend B(N)* R-404A(N)*, R-410A(N), R-407C(N)*, RS-24(N)*, NU-22(N)*, RS-44(N)*, R-513 (Opteon XP 10)(N)*, R-448A(N)*, R-449A(N)*, R-449B(N)*, R-450A(N)*, R-453A(N)*, R-458A(N)*

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Supplementary Information

The *Mexichem Fluor, Inc., v. EPA* court decision vacated the HFC bans in EPA SNAP Rule 20. So, these HFCs are now allowed. The Trakref Refrigerant Use Chart reflects this update; However, we caution end-users to be weary of using high-GWP HFC refrigerants because of ongoing regulatory activity in California.

In fact, on March 23rd, the California Air Resources Board (CARB) **adopted a new HFC regulation** that prohibits HFCs in certain refrigeration end-uses. For your convenience, we have attached another chart which details CARB's proposed HFC regulation. And for more information, please see

"Have You Heard? California Adopts New HFC Regulation" at https://news.trakref.com/california-adopts-new-hfc-regulation

"Court rejects petition to retain HFC bans" at https://www.coolingpost.com/world-news/court-rejects-petition-retain-hfc-bans/

"California acts to limit powerful climate-changing chemicals" at https://ww2.arb.ca.gov/news/california-acts-limit-powerful-climate-changing-chemicals

REFERENCES

"EPA SNAP Substitutes by Sector" at https://www.epa.gov/snap/snap-substitutes-sector

"High-Global Warming Potential Refrigerant Emissions Reductions Regulation" at https://www.arb.ca.gov/regact/2018/casnap/casnap.htm

2018 Refrigerant Chart

For the latest HVAC/R updates, follow Trakref on:

CARB'S NEW HFC REGULATION

Final regulation is set to be published soon.

The proposed regulation prohibits the following substitutes in these end-uses as of the dates you see below:

SPECIFIC END-USE	SEP. 1, 2018	JAN. 1, 2019	JAN. 1, 2020
Supermarket systems (new)	HFC-227EA, R-404A, R-407B, R-421B, R422A, R-422C, R422D, R-428A, R434A, R-507A		
Supermarket systems (retrofit)	R-404A, R-407B, R421B, R-422A, R422C, R-422D, R428A, R-434A, R507A		
Remote condensing units (new)	HFC-227EA, R-404A, R-407B, R-421B, R422A, R-422C, R422D, R-428A, R434A, R-507A		
Remote condensing units (retrofit)	R-404A, R-407B, R421B, R-422A, R422C, R-422D, R428A, R-434A, R507A		

SPECIFIC END-USE	SEP. 1, 2018	JAN. 1, 2019	JAN. 1, 2020
Stand-alone medium temperature units with a compressor capacity below 2,200 Btu/hr and not containing a flooded evaporator (new)		FOR12A, FOR12B, HFC-134a, HFC227ea, KDD6, R125/290/134a/600a (55.0/1.0/42.5/1.5), R404A, R-407A, R407B, R-407C, R407F, R-410A, R410B,R-417A, R421A, R-421B, R422A, R-422B, R422C, R-422D, R424A, R-426A, R428A, R-434A, R437A, R-438A, R507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03	
Stand-alone mediumtemperature units with a compressor capacity below 2,200 Btu/hr and containing a flooded evaporator (new)			FOR12A, FOR12B, HFC-134a, HFC227ea, KDD6, R125/290/134a/600a (55.0/1.0/42.5/1.5), R404A, R-407A, R407B, R-407C, R407F, R-410A, R410B, R-417A, R421A, R-421B, R422A, R-422B, R422C, R-422D, R424A, R-426A, R428A, R-434A, R437A, R-438A, R507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03

SPECIFIC END-USE	SEP. 1, 2018	JAN. 1, 2019	JAN. 1, 2020
Stand-alone medium temperature units with a compressor capacity equal to or greater than 2,200 Btu/hr (new)			FOR12A, FOR12B, HFC-134a, HFC227ea, KDD6, R125/290/134a/600a (55.0/1.0/42.5/1.5), R404A, R-407A, R407B, R-407C, R407F, R-410A, R410B, R-417A, R421A, R-421B, R422A, R-422B, R422C, R-422D, R424A, R-426A, R428A, R-434A, R437A, R-438A, R507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03
Stand-alone low-temperature units (new)			HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R404A, R-407A, R407B, R-407C, R407F, R-410A, R410B, R-417A, R421A, R-421B, R422A, R-422B, R422C, R-422D, R424A, R-428A, R434A, R-437A, R438A, R-507A, RS-44 (2003 formulation)
Stand-alone units (retrofit)	R-404A, R-507A		

SPECIFIC END-USE		JAN. 1, 2021
Refrigerated food processing and dispensing equipment (new)	. . . . .	HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R- 404A, R-407A, R- 407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-44 (2003 formulation)