

표 1. 혼합냉매 유럽 및 PCT 특허현황 (1989 - 1993)

	특허번호	출원인	특 허 내 용	비 고
1	EP 0 427 604 A1	FR ATOCHEM	134a + 218	(EP001)
2	EP 0 448 997 A2	JP DAIKIN	143a	
3	EP 0 451 016 A1	FR ATOCHEM	143a + 290	(EP002)
4	EP 0 509 673 A1	GB ICI	134a+32+125, 134a+227ea+32, 134a+227ea+32+125, 134a+143a+125, 134a+227ea+143a, 134a+227ea+143a+125, 134a+32+143a,134a+32+143a+125,227ea+32+125, 227ea+32+143a, 227ea+32+143a+125, 227ea + 143a + 125	(EP003)
5	EP 0 537 045 A1	FR ATOCHEM	143a + C218 + 290	(EP004)
6	EP 0 552 075 A1	FR ATOCHEM	143a + C218	(EP005)
7	EP 0 565 265 A1	GB Star Refrigeration	134a+(290, propylene, 600a) (+ 218)	(EP006)
8	EP 0 579 072 A1	DE Solvay	23 + 134a	(EP007)
9	EP 0 617 983 A1	SE Andersson	SF ₆ + 134a + 23	
10	EP 0 621 328 A1	GB Star Refrigeration	125 + 218 + 290	(EP008)
11	EP 0 632 002 A1	FR ATOCHEM	32 + 134a + 14	
12	EP 0 659 862 A1	JP SANYO	32 + 125 + 134a + 600	(EP009)
13	EP 0 693 541 A1	FR ATOCHEM	32 + 23 + 134a	(EP010)
14	EP 0 738 772 A1	FR ATOCHEM	32+125+(143a, 161, 134a, 152a, 134, 227ea, 227ca, 245cb)	(EP011)
15	EP 0 738 773 A1	FR ATOCHEM	32 + 125 + (C218, 227ea, 227ca, 245cb, E143a, E125)	(EP012)
16	EP 0 742 274 A1	FR ATOCHEM	32 + 125 + 143a	(EP013)
17	EP 0 845 519 A1	FR ATOCHEM	32 + 125	(EP014)
18	WO 89/02456	JP DAIKIN	143a + 134a	(W001)
19	WO 92/16596	BR STAR Ref	125 + 218 + 290	(W002)
20	WO 92/17558	US DU PONT	134a + (152a, 318, 600, 600a, 227ea)	(W003)
21	WO 92/20756	US, CA, Univ. of Moncton	23 + 152a + 22	
22	WO 93/06186	JP DAIKIN	32 + 143a	(W004)
23	WO 93/06188	JP DAIKIN	32 + 218	(W005)

표 2. 혼합냉매 유럽 및 PCT 특허현황 (1993 - 1994)

	특허번호	출원인	특 허 내 용	비 고
24	WO 93/11201	US EPA	E143a+152a,E143a+134,245cb+227ea, 245cb+134,E125+C270,134a+E143a, E125+134a,(E143a,E125)+(245ca,245fa, 32),245ca+(152a,245cb,245fa,227ea,134a ,32,C270,290),245fa+(134a,32,152a,C270 ,290), 245cb + 32, 227ea + 32	
25	WO 93/14174	ICI	E125 + (32, 125, 143a)	
26	WO 93/15162	US Allied Signal	32 + 134a + (152a, 143a, 290, DME)	(W006)
27	WO 93/15163	US Allied Signal	134a + 125 + (152a, 290, 143a)	(W007)
28	WO 93/18110	US, CA, Univ. of Moncton	23 + 125 + 32	(W008)
29	WO 93/19117	US Great Lakes Chem Corp	227ea + 152a	
30	WO 93/21280	JP SANYO	143a + 116	
31	WO 94/00528	US Du Pont	125 + 143a	
32	WO 94/00529	US Great Lakes Chem. Co.	227ea+(290,600,32,152a,143a,143,DME, 600a, 124, 125, 134, 134a, C270)	(W009)
33	WO 94/01512	US DuPont	116 + (23, N ₂ O, CO ₂ , 41)	
34	WO 94/02563	US Du Pont	134+(227ea,245cb,C270,C318,fluoroetha ne,trifluoromethylsulfur pentafluoride, 1,1,1-trifluoropropane,2,2-difluoroprop ane,2-fluoropropane, 1-fluoropropane)	(W010)
35	WO 94/02564	US Du Pont	pentafluorodimethyl ether + (717, DME, C270, 290, propylene)	
36	WO 94/04628	Allied Signal Inc	32 + 143a (Azeotropic-like)	
37	WO 94/09083	US Du Pont	bis(difluoromethyl)ether+(1-trifluoro methoxy-1,1,2,2-tetrafluoroethane, difluoromethoxy pentafluoroethane, 1-trifluoromethoxy-1,2,2,2-tetrafluoro ethane,1-trifluoromethoxy-2,2,2-triflu oroethane, tris(trifluoromethyl)amine, difluoromethyl sulfur pentafluoride, pentafluoroethyl sulfur pentafluoride, 717, 600, 600a)	
38	WO 94/11459	Allied Signal Inc	32 + 125 + 143a (Azeotropic-like)	

표 3. 혼합냉매 유럽 및 PCT 특허현황 (1994 - 1997)

	특허번호	출원인	특 허 내 용	비 고
39	WO 94/11460	US Du Pont	1,1,2-trifluoroethane + (236ca,236cb, 236ea,254cb,254eb,263fb,272ca,281ea, 281fa,338mf,431mee,600,C270,600a,290)	
40	WO 94/13764	Exxon Chemical Patents Inc	143a+Polyol ester lub.(Neopentylgly col ester, Triemthylolpropane ester)	
41	WO 94/20588		Fluoroiodocarbon blends, CFC종류별 용도 Table	
42	WO 94/22973	US Du Pont	236ea+(245cb,pentafluoropropane,tetra fluoropropane,trifluoropropane,difluoro propane,fluoropropane, (CF ₃) ₂ CHCH ₃)	
43	WO 95/08602	GB STAR Ref.	125 + 134a + (600a, 290) (+218)	(W011)
44	WO 95/24451		32+(600a,600,propylene,C270),125+(pro pylene,C270),134+290,134a+C270,143a+ (DME,propylene),152a+(290,600a,600, C270),fluroethane+(290,C270), 227ca+ (600,C270,DME,600a,290), 227ea+(600, C270, 600a, 290)	(W012)
45	WO 96/02603	GB ICI	41+(134a, 134) and/or (32,143a,125)	
46	WO 96/02604	ICI	(CO ₂ ,41)+(HFC,HFE)+HC, CO ₂ +134a+ 290,CO ₂ +32+134a+290, CO ₂ +32+125+ 134a + 290	
47	WO 96/02605	ICI	41 + 1 or 2 of (32, 143a, 125)	
48	WO 96/02606	ICI	CO ₂ +(134a,134)+1or2 of (32,143a,125)	
49	WO 96/02607	US Du Pont	32 + 125 + 744	
50	WO 96/03472	GB ICI	(32,143a) + 125 + 218 (+ 134a, 134)	(W013)
51	WO 96/03473	GB ICI	(32,143a)+125+(n-C ₅ ,290)+(134a,134)	
52	WO 97/07180	GB ICI	744 + 125 + 290 + 22	
53	WO 97/07181	GB ICI	744 + 32 + 125	
54	WO 97/14764	Allied Signal Inc	E125+(propane, c-propane, i-butane)	
55	WO 97/15637	CN Tsinghua Univ	(iodotrifluoromethane,125,134a,22)+(50 ,170,290,C270,600,600a,32,152a,143a,D ME,fluoroethane,proprene,ethylether)	(W014)
56	WO 97/16501	ICI,	R134a + n-pentane	

표 4. 혼합냉매 유럽 및 PCT 특허현황 (1997 - 1999)

	특허번호	출원인	특 허 내 용	비 고
57	WO 97/17414,	Star Ref. Ltd.	R134a+(R218, R227ea, R227ca, C318)	
58	WO 97/29162	Matsushita	32 + (C270, 600a, 600)	
59	WO 97/34961	Goble (US)	227ea+152a+125,227ea+125,600a+227ea+125,600a+227ea+125+134a,245cb+125+290,245cb+125+290+134a,134+143a+290,227ea+143a+290,245cb+143a+600,245cb+E125+600,E143a+E125+600,227ea+152a+125+600,227ea+125+134a+600a,245cb+125+290,245cb+(125, 143a),227ea+143a,245cb+143a,227ea+152a+125	
60	WO 98/05732	개인(미국)	1216 (Haxafluoropropylene)포함냉매(CH ₄ ,C ₂ H ₆ ,290,600,600a,Hexane,C ₂ H ₄)+(C ₄ F ₁₀ , C ₃ H ₈) + 1216	
61	WO 98/12277	FR Centre Tech.	290 + (134a, 22)	(W015)
62	WO 98/20089	Du Pont	161+(134a,152a,281ea,600,600a,DME), 281ea+(134a,152a,290,DME)	
63	WO 99/41324	JP DAIKIN	(32,152a)+(170,nitrousoxide,717,DME)	