

Title (en)  
REFRIGERATION LUBRICANTS

Publication  
**EP 0480479 A3 19920617 (EN)**

Application  
**EP 91121100 A 19891017**

Priority  
• EP 89119265 A 19891017  
• JP 17200089 A 19890705  
• JP 17200189 A 19890705  
• JP 17200289 A 19890705

Abstract (en)  
[origin: EP0406479A1] A lubricant for hydrofluorocarbon refrigerant comprises as a main component an ester obtained by esterifying at least one straight or branched-chain monovalent fatty acid having a particular carbon number with neopentyl glycol or at least one compound of general formula (I) or a polyvalent alcohol of general formula (II) or further at least one polybasic acid having a particular carbon number: <CHEM> This lubricant has a sufficient compatibility with the hydrofluorocarbon refrigerant used as a refrigerant instead of the conventional chlorine-containing compounds.

IPC 1-7  
**C10M 105/38**; **C10M 105/40**; **C10M 105/42**

IPC 8 full level  
**C10M 105/00** (2006.01); **C10M 105/32** (2006.01); **C10M 105/38** (2006.01); **C10M 105/40** (2006.01); **C10M 105/42** (2006.01); **C10M 105/44** (2006.01); **C10M 171/00** (2006.01)

CPC (source: EP KR)  
**C10M 105/00** (2013.01 - EP); **C10M 105/32** (2013.01 - EP); **C10M 105/38** (2013.01 - EP KR); **C10M 105/40** (2013.01 - EP); **C10M 105/42** (2013.01 - EP KR); **C10M 105/44** (2013.01 - EP); **C10M 105/52** (2013.01 - EP); **C10M 171/008** (2013.01 - EP); **C10M 2203/003** (2013.01 - EP); **C10M 2207/2805** (2013.01 - EP); **C10M 2207/281** (2013.01 - EP); **C10M 2207/282** (2013.01 - EP); **C10M 2207/283** (2013.01 - EP); **C10M 2207/2835** (2013.01 - EP); **C10M 2207/286** (2013.01 - EP); **C10M 2207/2875** (2013.01 - EP); **C10M 2207/2885** (2013.01 - EP); **C10M 2207/289** (2013.01 - EP); **C10M 2207/2895** (2013.01 - EP); **C10M 2207/301** (2013.01 - EP); **C10M 2207/302** (2013.01 - EP); **C10M 2207/3025** (2013.01 - EP); **C10M 2207/345** (2013.01 - EP); **C10M 2209/109** (2013.01 - EP); **C10M 2209/11** (2013.01 - EP); **C10M 2211/0206** (2013.01 - EP); **C10M 2211/022** (2013.01 - EP); **C10M 2211/0225** (2013.01 - EP); **C10M 2211/0245** (2013.01 - EP); **C10M 2211/06** (2013.01 - EP); **C10N 2040/00** (2013.01 - EP); **C10N 2040/30** (2013.01 - EP); **C10N 2040/32** (2013.01 - EP); **C10N 2040/34** (2013.01 - EP); **C10N 2040/36** (2013.01 - EP); **C10N 2040/38** (2020.05 - EP); **C10N 2040/40** (2020.05 - EP); **C10N 2040/42** (2020.05 - EP); **C10N 2040/44** (2020.05 - EP); **C10N 2040/50** (2020.05 - EP)

Citation (search report)  
• [X] EP 0272575 A2 19880629 - HENKEL KGAA [DE]  
• [X] US 4234497 A 19801118 - HONIG MILTON L  
• [X] US 4826633 A 19890502 - CARR DALE D [US], et al  
• [XP] US 4851144 A 19890725 - MCGRAW PHILIP W [US], et al  
• [E] EP 0378176 A1 19900718 - DOW CHEMICAL CO [US]  
• [E] WO 9012849 A1 19901101 - LUBRIZOL CORP [US]  
• [X] DATABASE WPIL, accession no. 81-87972D [48], Derwent Publications Ltd, London, GB; & JP-A-56 131 548 (NIPPON OILS & FATS K.K.)  
• [X] DATABASE WPIL, accession no. 84-267230 [43], Derwent Publications Ltd, London, GB; & JP-A-59 164 393 (NIPPON OILS & FATS K.K.)  
• [X] DATABASE WPIL, accession no. 88-032071 [05], Derwent Publications Ltd, London, GB; & JP-A-62 290 795 (NIPPON OILS & FATS K.K.)  
• [X] DATABASE WPIL, accession no. 84-072552 [12], Derwent Publications Ltd, London, GB; & JP-A-59 027 979 (KAO CORP. et al.)  
• [X] DATABASE WPIL, accession no. 81-10531D [07], Derwent Publications Ltd, London, GB; & JP-A-55 157 537 (NIPPON OILS & FATS K.K.)  
• [X] DATABASE WPIL, accession no. 81-03048D [03], Derwent Publications Ltd, London, GB; & JP-A-55 145 638 (NIPPON OILS & FATS K.K.)

Cited by  
US5470497A; US5997760A; US6693064B2; US5494597A; AU715115B2; US5830833A; US5342533A; US5833876A; US6998065B1; EP0835922A1; EP0580308A1; US5395544A; AU714683B2; US6350392B1; US6551523B1; EP0514988A3; US7052626B1; TR25716A; US6582621B1; WO9640848A1; WO9532266A1; WO9409096A1; WO9416028A1; KR100249556B1

Designated contracting state (EPC)  
DE ES FR GB IT SE

DOCDB simple family (publication)  
**EP 0406479 A1 19910109**; **EP 0406479 B1 19940406**; **EP 0406479 B2 20020904**; DE 68914448 D1 19940511; DE 68914448 T2 19940825; DE 68914448 T3 20030306; DE 68925537 D1 19960307; DE 68925537 T2 19960704; DE 68927916 D1 19970430; DE 68927916 T2 19970821; DE 68927916 T3 20050310; DE 68928281 D1 19971002; DE 68928281 T2 19980115; EP 0479338 A2 19920408; EP 0479338 A3 19920527; EP 0479338 B1 19970827; EP 0480479 A2 19920415; EP 0480479 A3 19920617; EP 0480479 B1 19970326; EP 0480479 B2 20040901; EP 0536814 A1 19930414; EP 0536814 B1 19960124; ES 2051340 T3 19940616; ES 2051340 T5 20030316; ES 2082341 T3 19960316; ES 2099120 T3 19970516; ES 2099120 T5 20050316; ES 2104650 T3 19971016; KR 0131016 B1 19980414; KR 0131017 B1 19980414; KR 910003077 A 19910226; KR 950005694 B1 19950529; KR 970078831 A 19971212; KR 970078832 A 19971212; SG 49157 A1 19980518; SG 49165 A1 19980518

DOCDB simple family (application)  
**EP 89119265 A 19891017**; DE 68914448 T 19891017; DE 68925537 T 19891017; DE 68927916 T 19891017; DE 68928281 T 19891017; EP 91121100 A 19891017; EP 91121101 A 19891017; EP 92121965 A 19891017; ES 89119265 T 19891017; ES 91121100 T 19891017; ES 91121101 T 19891017; ES 92121965 T 19891017; KR 19960019881 A 19960604; KR 19970000016 A 19970103; KR 890014232 A 19891004; SG 1996007058 A 19891007; SG 1996007124 A 19891017