

Stoffliste BJ 2020
Bestimmte klimawirksame Stoffe und deren Blends

Stoff	STKZ ¹⁾	Chemische Bezeichnung / Handelsbezeichnung	Summenformel	CO ₂ - Äquivalente ²⁾
FKW				
R 14	9501	Tetrafluormethan	CF ₄	7 390
R 116	9506	Hexafluorethan	C ₂ F ₆	12 200
R 216	9510	Hexafluorocyclopropan	c-C ₃ F ₆	17 340
R 218	9511	Oktafluoropropan	C ₃ F ₈	8 830
R 318	9512	Octafluorocyclobutan	c-C ₄ F ₈	10 300
R 3-1-10	9516	Decafluorbutan	C ₄ F ₁₀	8 860
R 4-1-12	9521	Dodecafluorpentan	C ₅ F ₁₂	9 160
R 5-1-14	9526	Tetradecafluorhexan	C ₆ F ₁₄	9 300
R 9-1-18	9528	Perfluordecalin	C ₁₀ F ₁₈	7 500
R 1316	9529	Hexafluor-1,3-butadien	CF ₂ =CF-CF=CF ₂	1
H-FKW				
R 23	9601	Trifluormethan	CHF ₃	14 800
R 32	9603	Difluormethan	CH ₂ F ₂	675
R 41	9605	Fluormethan	CHF ₃	92
R 125	9607	Pentafluorethan	CHF ₂ -CF ₃	3 500
R 134	9609	1,1,2,2-Tetrafluorethan	CHF ₂ -CHF ₂	1 100
R 134a	9611	1,1,1,2-Tetrafluorethan	CF ₃ -CH ₂ F	1 430
R 143	9613	1,1,2-Trifluorethan	CHF ₂ -CH ₂ F	353
R 143a	9615	1,1,1-Trifluorethan	CH ₃ CF ₃	4 470
R 152	9616	1,2-Difluorethan	CHF ₂ -CH ₂	53
R 152a	9617	1,1-Difluorethan	CHF ₂ -CH ₃	124
R 161	9619	Fluorethan	CH ₃ -CH ₂ F	12
R 227ea	9623	1,1,1,2,3,3,3-Heptafluoropropan	CF ₃ CHFCF ₃	3 220
R 236cb	9627	1,2,2,3,3,3-Hexafluoropropan	CH ₂ FCF ₂ CF ₃	1 340
R 236ea	9629	1,1,2,3,3,3-Hexafluoropropan	CHF ₂ CHFCF ₃	1 370
R 236fa	9631	1,1,1,3,3,3-Hexafluoropropan	CF ₃ -CH ₂ -CF ₃	9 810
R 245ca	9633	1,1,2,2,3-Pentafluoropropan	CHF ₂ CF ₂ CH ₂ F	693
R 245fa	9637	1,1,3,3,3-Pentafluoropropan ("Enovate")	CHF ₂ CH ₂ CF ₃	1 030
R 43-10mee	9670	1,1,1,2,2,3,4,5,5,5-Decafluoropentan Vertel XF	CF ₃ CF ₂ CHFCF ₂ CF ₃	1 640
R 365mfc	9671	1,1,1,3,3-Pentafluorbutan	CF ₃ CH ₂ CF ₂ CH ₃	794
R 1234yf	9673	2,3,3,3,-Tetrafluorprop-1-en ("Opteon YF")	CH ₂ =CF-CF ₃	4
R 1234ze (E)	9675	trans-1,3,3,3-Tetrafluorprop-1-en ("HBA-1")	CHF=CH-CF ₃ (E)	7
R 1336mzz (Z)	9680	1,1,1,4,4,4,-Hexafluorbut-2-en	CF ₃ CH=CH-CF ₃	9
Blends				
R 404A	9801	Suva HP 62 (Suva 404A), Reclin 404A, Forane FX 70 (Forane 404A, Meforex M 55, Solkane 404A, Isceon 404 A, Klea 404A)	R 125 (CHF ₂ -CF ₃): 44% R 134a (CF ₃ -CH ₂ F): 4% R 143a (CH ₂ CF ₃): 52%	3 922
R 407A	9804	Klea 407A (Klea 60), Isceon 407A, Suva 407A	R 32 (CH ₂ F ₂): 20% R 125 (CHF ₂ -CF ₃): 40% R 134a (CF ₃ -CH ₂ F): 40%	2 107
R 407B	9805	Klea 407B	R 32 (CH ₂ F ₂): 10% R 125 (CHF ₂ -CF ₃): 70% R 134a (CF ₃ -CH ₂ F): 20%	2 804
R 407C	9810	Reclin 407C, HX 3, Forane 407C, Suva AC 9000 (Suva 407C), Klea 407C (Klea 66), Meforex M 95, Isceon 407C, Solkane 407C, Daikin R407C	R 32 (CH ₂ F ₂): 23% R 125 (CHF ₂ -CF ₃): 25% R 134a (CF ₃ -CH ₂ F): 52%	1 774
R 407D	9811	Klea 407D	R 32 (CH ₂ F ₂): 15% R 125 (CHF ₂ -CF ₃): 15% R 134a (CF ₃ -CH ₂ F): 70%	1 627
R 407E	9812	Klea 407E	R 32 (CH ₂ F ₂): 25% R 125 (CHF ₂ -CF ₃): 15% R 134a (CF ₃ -CH ₂ F): 60%	1 552
R 407F	9814	Genetron Performax LT	R 32 (CH ₂ F ₂): 30% R 125 (CHF ₂ -CF ₃): 30% R 134a (CF ₃ -CH ₂ F): 40%	1 825
R 407G	9815	Klea 407G	R 32 (CH ₂ F ₂): 2,5% R 125 (CHF ₂ -CF ₃): 2,5% R 134a (CF ₃ -CH ₂ F): 95%	1 463
R 407H	9816	Klea 407H, Creard R407H	R 32 (CH ₂ F ₂): 32,5% R 125 (CHF ₂ -CF ₃): 15% R 134a (CF ₃ -CH ₂ F): 52,5%	1 495
R 407I	9817		R 32 (CH ₂ F ₂): 19,5% R 125 (CHF ₂ -CF ₃): 8,5% R 134a (CF ₃ -CH ₂ F): 72%	1 459
R 410A	9813	Genetron AZ 20, Solkane 410A, Reclin 410, Suva 410A, Meforex M 98, Klea 410A, Forane 410A, Daikin R410A	R 32 (CH ₂ F ₂): 50% R 125 (CHF ₂ -CF ₃): 50%	2 088
R 410B	9818		R 32 (CH ₂ F ₂): 45% R 125 (CHF ₂ -CF ₃): 55%	2 229
R 413A	9819	Isceon MO49	R 134a (CF ₃ -CH ₂ F): 88% R 218 (C ₃ F ₈): 9% R 600a (CH(CH ₃) ₃): 3%	2 053
R 417A	9849	Isceon MO59	R 125 (CHF ₂ -CF ₃): 46,6% R 134a (CH ₂ -CF ₃ F): 50% R 600 (CH ₃ CH ₂ CH ₂ CH ₃): 3,4%	2 346

CO₂ - Äquivalente -Faktor: Treibhauspotenzial eines Stoffes entsprechend der gleichen Menge (Masse) CO₂ Kohlenstoffdioxid CO₂ - Äquivalente -Faktor = 1

¹⁾ STKZ -Stoffkennziffer

²⁾ CO₂ - Äquivalente nach IPCC 2007: laut Beschlüssen in Durban verbindlich gültig ab dem Berichtsjahr 2013 für die Emissionsberichterstattung (Post-Kyoto);

(Quelle: IPCC 4th Assessment Report, Climate Change 2007)

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R 417B	9850	Solkane 22L	R 125 (CHF ₂ -CF ₃): 79% R 134a (CH ₂ F-CF ₃): 18,3% R 600 (CH ₃ -CH ₂ -CH ₂ -CH ₃): 2,7%	3 027
R 417C	9847		R 125 (CHF ₂ -CF ₃): 19,5% R 134a (CH ₂ F-CF ₃): 78,8% R 600 (CH ₃ -CH ₂ -CH ₂ -CH ₃): 1,7%	1 809
R 419A	9803	Forane FX 90	R 125 (CHF ₂ -CF ₃): 77% R 134a (CF ₃ -CH ₂ F): 19% RE170 (CH ₃ -O-CH ₃): 4%	2 967
R 419B	9848		R 125 (CHF ₂ -CF ₃): 48,5% R 134a (CF ₃ -CH ₂ F): 48% RE170 (CH ₃ -O-CH ₃): 3,5%	2 384
R 422A	9866	Isceon MO79	R 125 (CHF ₂ -CF ₃): 85,1% R 134a (CF ₃ -CH ₂ F): 11,5% R 600a (CH(CH ₃) ₃): 3,4%	3 143
R 422B	9843		R 125 (CHF ₂ -CF ₃): 55% R 134a (CF ₃ -CH ₂ F): 42% R 600a (CH(CH ₃) ₃): 3%	2 526
R 422C	9871		R 125 (CHF ₂ -CF ₃): 82% R 134a (CF ₃ -CH ₂ F): 15% R 600a (CH(CH ₃) ₃): 3%	3 085
R 422D	9867	Isceon MO29	R 125 (CHF ₂ -CF ₃): 65,1% R 134a (CF ₃ -CH ₂ F): 31,5% R 600a (CH(CH ₃) ₃): 3,4%	2 729
R 422E	9872		R 125 (CHF ₂ -CF ₃): 58% R 134a (CF ₃ -CH ₂ F): 39,3% R 600a (CH(CH ₃) ₃): 2,7%	2 592
R 425A	9873		R 32 (CH ₂ F ₂): 18,5% R 134a (CF ₃ -CH ₂ F): 69,5% R 227ea (CF ₃ -CHF-CF ₃): 12%	1 505
R 426A	9836		R 125 (CHF ₂ -CF ₃): 5,1% R 134a (CF ₃ -CH ₂ F): 93% R 600 (CH ₃ -CH ₂ -CH ₂ -CH ₃): 1,3% R 601a (CH ₃ -CH(CH ₃)-CH ₂ -CH ₃): 0,6%	1 508
R 427A	9840	Forane FX100 (Forane 427A)	R 32 (CH ₂ F ₂): 15% R 125 (CHF ₂ -CF ₃): 25% R 134a (CF ₃ -CH ₂ F): 50% R 143a (CH ₃ CF ₃): 10%	2 138
R 429A	9874		R 152a (CHF ₂ -CH ₃): 10% R E170 (CH ₃ -O-CH ₃): 60% R 600a (CH(CH ₃) ₃): 30%	14
R 430A	9851		R 152a (CHF ₂ -CH ₃): 76% R 600a (CH(CH ₃) ₃): 24%	95
R 431A	9852		R 152a (CHF ₂ -CH ₃): 29% R 290 (CH ₃ -CH ₂ -CH ₃): 71%	38
R 434A	9845	RS-45	R 125 (CHF ₂ -CF ₃): 63,2% R 143a (CH ₃ -CF ₃): 18% R 134a (CF ₃ -CH ₂ F): 16% R 600a (CH(CH ₃) ₃): 2,8%	3 245
R 435A	9853		R 152a (CHF ₂ -CH ₃): 20% R E170 (CH ₃ -O-CH ₃): 80%	26
R 437A	9841	Isceon MO49Plus	R 125 (CHF ₂ -CF ₃): 19,5% R 134a (CF ₃ -CH ₂ F): 78,5% R 600 (CH ₃ CH ₂ CH ₂ CH ₃): 1,4% R 601 (CH ₃ CH ₂ CH ₂ CH ₂ CH ₃): 0,6%	1 805
R 438 A	9842	Isceon MO99	R 32 (CH ₂ F ₂): 8,5% R 125 (CHF ₂ -CF ₃): 45% R 134a (CF ₃ -CH ₂ F): 44,2% R 600 (CH ₃ CH ₂ CH ₂ CH ₃): 1,7% R 601a (CH ₃ CH(CH ₃)CH ₂ CH ₃): 0,6%	2 265
R 439A	9854		R 32 (CH ₂ F ₂): 50% R 125 (CHF ₂ -CF ₃): 47% R 600a (CH(CH ₃) ₃): 3%	1 983

R 440A	9856		R 134a (CF ₃ -CH ₂ F): 1,6% R 152a (CHF ₂ -CH ₃): 97,8% R 290 (CH ₃ -CH ₂ -CH ₃): 0,6%	144
R 442A	9857	RS 50	R 32 (CH ₂ F ₂): 31% R 125 (CHF ₂ -CF ₃): 31% R 134a (CF ₃ -CH ₂ F): 30% R 152a (CHF ₂ -CH ₃): 3% R 227ea (CF ₃ -CHF-CF ₃): 5%	1 888
R 444A	9859	Mexichem AC5	R 32 (CH ₂ F ₂): 12% R 152a (CHF ₂ -CH ₃): 5% R 1234ze (E) (CF ₃ -CH=CHF(E)): 83%	93
R 444B	9860	Solstice L-20	R 32 (CH ₂ F ₂): 41,5% R 152a (CHF ₂ -CH ₃): 10% R 1234ze (E) (CF ₃ -CH=CHF(E)): 48,5%	296
R 445A	9875	Mexichem AC6	R 134a (CF ₃ -CH ₂ F): 9% R 1234ze (E) (CF ₃ -CH=CHF(E)): 85% R 744 (CO ₂): 6%	135
R 446A	9876		R 32 (CH ₂ F ₂): 68% R 1234ze (E) (CHF=CH-CF ₃ (E)): 29% R 600 (CH ₃ -CH ₂ -CH ₂ -CH ₃): 3%	461
R 447A	9877	Solstice L-41	R 32 (CH ₂ F ₂): 68% R 125 (CHF ₂ -CF ₃): 3,5% R 1234ze (E) (CHF=CH-CF ₃ (E)): 28,5%	583
R 447B	9889	Solstice L-41z	R 32 (CH ₂ F ₂): 68% R 125 (CHF ₂ -CF ₃): 8% R 1234ze (E) (CHF=CH-CF ₃ (E)): 24%	741
R 448A	9878	Solstice N40	R 32 (CH ₂ F ₂): 26% R 125 (CHF ₂ -CF ₃): 26% R 134a (CF ₃ -CH ₂ F): 21% R 1234yf (CH ₂ =CF-CF ₃): 20% R 1234ze (E) (CHF=CH-CF ₃ (E)): 7%	1 387
R 449A	9879	Opteon XP40	R 32 (CH ₂ F ₂): 24,3% R 125 (CHF ₂ -CF ₃): 24,7% R 134a (CF ₃ -CH ₂ F): 25,7% R 1234yf (CH ₂ =CF-CF ₃): 25,3%	1 397
R 449B	9901		R 32 (CH ₂ F ₂): 25,2% R 125 (CHF ₂ -CF ₃): 24,3% R 134a (CF ₃ -CH ₂ F): 27,3% R 1234yf (CH ₂ =CF-CF ₃): 23,2%	1412
R 449C	9902	Opteon XP 20	R 32 (CH ₂ F ₂): 20% R 125 (CHF ₂ -CF ₃): 20% R 134a (CF ₃ -CH ₂ F): 29% R 1234yf (CH ₂ =CF-CF ₃): 31%	1251
R 450A	9880	Solstice N13	R 1234ze (E) (CHF=CH-CF ₃ (E)): 58% R 134a (CF ₃ -CH ₂ F): 42%	605
R 451A	9881		R 1234yf (CH ₂ =CF-CF ₃): 89,8% R 134a (CF ₃ -CH ₂ F): 10,2%	149
R 451B	9882		R 1234yf (CH ₂ =CF-CF ₃): 88,8% R 134a (CF ₃ -CH ₂ F): 11,2%	164
R 452A	9883	Opteon XP44	R 32 (CH ₂ F ₂): 11% R 125 (CHF ₂ -CF ₃): 59% R 1234yf (CH ₂ =CF-CF ₃): 30%	2 140
R 452B	9886	Opteon XL55	R 32 (CH ₂ F ₂): 67% R 125 (CHF ₂ -CF ₃): 7% R 1234yf (CH ₂ =CF-CF ₃): 26%	698
R 454A	9884	Opteon XL40	R 32 (CH ₂ F ₂): 35% R 1234yf (CH ₂ =CF-CF ₃): 65%	239
R 454B	9885	Opteon XL41, Puron Advance	R 32 (CH ₂ F ₂): 68,9% R 1234yf (CH ₂ =CF-CF ₃): 31,1%	466
R 454C	9887	Opteon XL20	R 32 (CH ₂ F ₂): 21,5% R 1234yf (CH ₂ =CF-CF ₃): 78,5%	148
R 455A	9888	Solstice L40X	R 32 (CH ₂ F ₂): 21,5% R 1234yf (CH ₂ =CF-CF ₃): 75,5% R 744 (CO ₂): 3%	148

R 456A	9890	AC5X	R 32 (CH ₂ F ₂): 6% R 134a (CF ₃ -CH ₂ F): : 45% R 1234ze (E) (CHF=CH-CF ₃): 49%	687
R 457A	9891	ARM-20a	R 32 (CH ₂ F ₂): 18% R 152a (CH ₃ -CHF ₂): 12% R 1234yf (CH ₂ =CF-CF ₃): 70%	139
R 459A	9892	ARM-71	R 32 (CH ₂ F ₂): 68% R 1234yf (CH ₂ =CF-CF ₃): 26% R 1234ze (E) (CF ₃ -CH=CHF): 6%	460
R 459B	9893	LTR11	R 32 (CH ₂ F ₂): 21% R 1234yf (CH ₂ =CF-CF ₃): 69% R 1234ze (E) (CF ₃ -CH=CHF): 10%	145
R 460A	9894	LTR10	R 32 (CH ₂ F ₂): 12% R 125 (CHF ₂ -CF ₃): 52% R 134a (CF ₃ -CH ₂ F): 14 % R 1234ze (E) (CHF=CH-CF ₃): 22%	2 103
R 460B	9895	LTR4X	R 32 (CH ₂ F ₂): 28% R 125 (CHF ₂ -CF ₃): 25% R 134a (CF ₃ -CH ₂ F): 20% R 1234ze (E) (CHF=CH-CF ₃): 27%	1 352
R 460C	9823		R 32 (CH ₂ F ₂): 2,5% R 125 (CHF ₂ -CF ₃): 2,5% R 134a (CF ₃ -CH ₂ F): 46% R 1234ze (E) (CHF=CH-CF ₃): 49%	766
R 463A	9824	Opteon XP41	R 32 (CH ₂ F ₂): 36% R 125 (CHF ₂ -CF ₃): 30% R 134a (CF ₃ -CH ₂ F): 14% R 1234yf (CH ₂ =CF-CF ₃): 14% R 744 (CO ₂): 6%	1 494
R 464A	9826		R 32 (CH ₂ F ₂): 27% R 125 (CHF ₂ -CF ₃): 27% R 227ea (CF ₃ -CHF-CF ₃): 6% R 1234ze (CHF=CH-CF ₃): 40%	1 323
R 465A	9827	ARM-25	R 32 (CH ₂ F ₂): 21% R 1234yf (CH ₂ =CF-CF ₃): 71,1% R 290 (C ₃ H ₈): 7,9%	145
R 466A	9896	Solstice N41	R 32 (CH ₂ F ₂): 49% R 125 (CHF ₂ -CF ₃): 11,5% CF ₃ I: 39,5%	733
R 467A	9903		R 32 (CH ₂ F ₂): 22% R 125 (CHF ₂ -CF ₃): 5% R 134a (CF ₃ -CH ₂ F): 72,4% R 600a (CH(CH ₃) ₃): 0,6%	1 359
R 468A	9904	Daikin	R 1132a (CH ₂ =CF ₂): 3,5% R 32 (CH ₂ F ₂): 21,5% R 1234yf (CH ₂ =CF-CF ₃): 75%	148
R 469A	9905		R 32 (CH ₂ F ₂): 32,5% R 125 (CHF ₂ -CF ₃): 32,5% R 744 (CO ₂): 35%	1 357
R 470A	9906	Refrigerant Solutions Ltd (RSL)	R 32 (CH ₂ F ₂): 17% R 125 (CHF ₂ -CF ₃): 19% R 134a (CF ₃ -CH ₂ F): 7% R 227ea (CF ₃ -CHF-CF ₃): 3% R 1234ze (CHF=CH-CF ₃): 44% R 744 (CO ₂): 10%	980
R 470B	9907	Refrigerant Solutions Ltd (RSL)	R 32 (CH ₂ F ₂): 11,5% R 125 (CHF ₂ -CF ₃): 11,5% R 134a (CF ₃ -CH ₂ F): 3% R 227ea (CF ₃ -CHF-CF ₃): 7% R 1234ze (CHF=CH-CF ₃): 57% R 744 (CO ₂): 10%	753
R 507A	9822	Suva 507, AZ 50, Solkane 507, Klea 507 Reclin 507, Forane 507, Meforex M 57, Isceon 507,	R 125 (CHF ₂ -CF ₃): 50% R 143a (CH ₃ CF ₃): 50%	3 985
R 508A	9825	Klea 508A (R5R3)	R 23 (CHF ₃): 39% R 116 (C ₂ F ₆): 61%	13 214
R 508B	9828	Suva 95	R 23 (CHF ₃): 46% R 116 (C ₂ F ₆): 54%	13 396

R 511A	9832		R 152a (CH ₂ -CHF ₂): 5% R 290 (CH ₃ -CH ₂ -CH ₃): 95%	9
R 512A	9833		R 134a (CF ₃ -CH ₂ F): 5% R 152a (CHF ₂ -CH ₃): 95%	189
R 513A	9838	Opteon XP10	R 1234yf (CH ₂ =CF-CF ₃): 56% R 134a (CF ₃ -CH ₂ F): 44%	631
R 513B	9897		R 1234yf (CH ₂ =CF-CF ₃): 41,5% R 134a (CF ₃ -CH ₂ F): 58,5%	596
R 514A	9898	Opteon XP30	R 1336mzz(Z) (CF ₃ -CH=CH-CF ₃): 74,7% R 1130 (E) (CHCl=CHCl): 25,3%	7
R 515A	9899	HDR-115	R 227ea (CF ₃ -CHF-CF ₃): 12% R 1234ze (E) (CHF=CH-CF ₃): 88%	393
R 515B	9829		R 227ea (CF ₃ -CHF-CF ₃): 8,9% R 1234ze (E) (CHF=CH-CF ₃): 91,1%	293
Isceon MO89	9846	Isceon MO89	R 125 (CHF ₂ CF ₃): 86% R 218 (C ₂ F ₈): 9% R 290 (H ₃ C-CH ₂ -CH ₃): 5%	3 805
365 mfc/ R 227ea Gemisch 1	9862	Solkane 365/227 93/7	R 227ea (CF ₃ CHF ₂ CF ₃): 7% R 365 mfc (CF ₃ CH ₂ CF ₂ CH ₃): 93%	964
365 mfc/ R 227ea Gemisch 2	9863	Solkane 365/227 87/13	R 227ea (CF ₃ CHF ₂ CF ₃): 13% R 365 mfc (CF ₃ CH ₂ CF ₂ CH ₃): 87%	1 109

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