

Stoffliste BJ 2018  
Bestimmte klimawirksame Stoffe und deren Blends

Stoff	STKZ <sup>1)</sup>	Chemische Bezeichnung / Handelsbezeichnung	Summenformel	CO <sub>2</sub> -Äquivalente <sup>2)</sup>
<b>FKW</b>				
R 14	9501	: Tetrafluormethan	CF <sub>4</sub>	7 390
R 116	9506	: Hexafluorethan	C <sub>2</sub> F <sub>6</sub>	12 200
R 216	9510	: Hexafluorocyclopropan	c-C <sub>3</sub> F <sub>6</sub>	17 340
R 218	9511	: Oktafluorpropan	C <sub>3</sub> F <sub>8</sub>	8 830
R 318	9512	: Octafluorocyclobutan	c-C <sub>4</sub> F <sub>8</sub>	10 300
R 3-1-10	9516	: Decafluorbutan	C <sub>4</sub> F <sub>10</sub>	8 860
R 4-1-12	9521	: Dodecafluorpentan	C <sub>5</sub> F <sub>12</sub>	9 160
R 5-1-14	9526	: Tetradecafluorhexan	C <sub>6</sub> F <sub>14</sub>	9 300
R 9-1-18	9528	: Perfluordecalin	C <sub>10</sub> F <sub>18</sub>	7 500
R 1316	9529	: Hexafluor-1,3-butadien	CF <sub>2</sub> =CF=CF=CF <sub>2</sub>	1
<b>H-FKW</b>				
R 23	9601	: Trifluormethan	CHF <sub>3</sub>	14 800
R 32	9603	: Difluormethan	CH <sub>2</sub> F <sub>2</sub>	675
R 41	9605	: Fluormethan	CHF <sub>3</sub>	92
R 125	9607	: Pentafluorethan	CHF <sub>2</sub> -CF <sub>3</sub>	3 500
R 134	9609	: 1,1,2,2-Tetrafluorethan	CHF <sub>2</sub> -CHF <sub>2</sub>	1 100
R 134a	9611	: 1,1,1,2-Tetrafluorethan	CF <sub>3</sub> -CH <sub>2</sub> F	1 430
R 143	9613	: 1,1,2-Trifluorethan	CHF <sub>2</sub> -CH <sub>2</sub> F	353
R 143a	9615	: 1,1,1-Trifluorethan	CH <sub>2</sub> CF <sub>3</sub>	4 470
R 152	9616	: 1,2-Difluorethan	CHF <sub>2</sub> -CH <sub>2</sub>	53
R 152a	9617	: 1,1-Difluorethan	CHF <sub>2</sub> -CH <sub>3</sub>	124
R 161	9619	: Fluorethan	CH <sub>3</sub> -CH <sub>2</sub> F	12
R 227ea	9623	: 1,1,1,2,3,3,3-Heptafluorpropan	CF <sub>3</sub> CHF <sub>2</sub> CF <sub>3</sub>	3 220
R 236cb	9627	: 1,2,2,3,3,3-Hexafluorpropan	CH <sub>2</sub> FCF <sub>2</sub> CF <sub>3</sub>	1 340
R 236ea	9629	: 1,1,2,3,3,3-Hexafluorpropan	CHF <sub>2</sub> CHF <sub>2</sub> CF <sub>3</sub>	1 370
R 236fa	9631	: 1,1,1,3,3,3-Hexafluorpropan	CF <sub>3</sub> -CH <sub>2</sub> -CF <sub>3</sub>	9 810
R 245ca	9633	: 1,1,2,2,3-Pentafluorpropan	CHF <sub>2</sub> CF <sub>2</sub> CH <sub>2</sub> F	693
R 245fa	9637	: 1,1,3,3,3-Pentafluorpropan ("Enovate")	CHF <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	1 030
R 43-10mee	9670	: 1,1,1,2,2,3,4,5,5,5-Decafluoropentan Vertel XF	CF <sub>3</sub> CF <sub>2</sub> CHF <sub>2</sub> CF <sub>3</sub>	1 640
R 365mfc	9671	: 1,1,1,3,3-Pentafluorbutan	CF <sub>3</sub> CH <sub>2</sub> CF <sub>2</sub> CH <sub>3</sub>	794
R 1234yf	9673	: 2,3,3,3,-Tetrafluorprop-1-en ("Opteon YF")	CH <sub>2</sub> =CF-CF <sub>3</sub>	4
R 1234ze (E)	9675	: trans-1,3,3,3-Tetrafluorprop-1-en ("HBA-1")	CHF=CH-CF <sub>3</sub> (E)	7
R 1336mzz (Z)	9680	: 1,1,1,4,4,4,-Hexafluorbut-2-en	CF <sub>3</sub> CH=CH-CF <sub>3</sub>	9
<b>Blends</b>				
R 404A	9801	: Suva HP 62 (Suva 404A), Reclin 404A, Forane FX 70 (Forane 404A, Meforex M 96, Solkane 404A, Isceon 404 A, Klea 404A)	R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 44% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 4% R 143a (CH <sub>3</sub> CF <sub>3</sub> ): 52%	3 922
R 407A	9804	: Klea 407A (Klea 60), Isceon 407A, Solkane 407A	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 20% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 40% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 40%	2 107
R 407B	9805	: Klea 407B	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 10% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 70% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 20%	2 804
R 407C	9810	: Reclin 407C, HX 3, Forane 407C, Suva AC 9000 (Suva 407C), Klea 407C (Klea 60), Meforex M 96, Isceon 407C, Solkane 407C	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 23% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 25% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 52%	1 774
R 407D	9811	: Klea 407D	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 15% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 15% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 70%	1 627
R 407E	9812	: Klea 407E	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 25% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 15% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 60%	1 552
R 407F	9814	: Genetron Performax LT	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 30% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 30% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 40%	1 825
R 407G	9815	: Klea 407G	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 2,5% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 2,5% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 95%	1 463
R 407H	9816	: Klea 407H, Creard R407H	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 32,5% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 15% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 52,5%	1 495
R 410A	9813	: Genetron AZ 20, Solkane 410A, Reclin 410, Suva 410A, Meforex M 98, Klea 410A, Forane 410A	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 50% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 50%	2 088
R 413A	9819	: Isceon MO49	R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 88% R 218 (C <sub>3</sub> F <sub>8</sub> ): 9% R 600a (CH(CH <sub>3</sub> ) <sub>3</sub> ): 3%	2 053
R 417A	9849	: Isceon MO59	R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 46,6% R 134a (CH <sub>2</sub> -CF <sub>3</sub> F): 50% R 600 (CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub> ): 3,4%	2 346

CO<sub>2</sub> - Äquivalente -Faktor: Treibhauspotenzial eines Stoffes entsprechend der gleichen Menge (Masse) CO<sub>2</sub> Kohlenstoffdioxid CO<sub>2</sub> - Äquivalente -Faktor = 1

<sup>1)</sup> STKZ -Stoffkennziffer

<sup>2)</sup> CO<sub>2</sub> - 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 <sub>2</sub> -CF <sub>3</sub> ): 79% R 134a (CH <sub>2</sub> F-CF <sub>3</sub> ): 18,3% R 600 (CH <sub>3</sub> -CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>3</sub> ): 2,7%	3 027
R 417C	9847		R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 19,5% R 134a (CH <sub>2</sub> F-CF <sub>3</sub> ): 78,8% R 600 (CH <sub>3</sub> -CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>3</sub> ): 1,7%	1 809
R 419A	9803	: Forane FX 90	R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 77% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 19% RE170 (CH <sub>3</sub> -O-CH <sub>3</sub> ): 4%	2 967
R 419B	9848		R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 48,5% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 48% RE170 (CH <sub>3</sub> -O-CH <sub>3</sub> ): 3,5%	2 384
R 422A	9866	: Isceon MO79	R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 85,1% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 11,5% R 600a (CH(CH <sub>3</sub> ) <sub>3</sub> ): 3,4%	3 143
R 422C	9871		R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 82% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 15% R 600a (CH(CH <sub>3</sub> ) <sub>3</sub> ): 3%	3 085
R 422D	9867	: Isceon MO29	R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 65,1% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 31,5% R 600a (CH(CH <sub>3</sub> ) <sub>3</sub> ): 3,4%	2 729
R 422E	9872		R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 58% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 39,3% R 600a (CH(CH <sub>3</sub> ) <sub>3</sub> ): 2,7%	2 592
R 425A	9873		R 32 (CH <sub>2</sub> F <sub>2</sub> ): 18,5% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 69,5% R 227ea (CF <sub>3</sub> -CHF-CF <sub>3</sub> ): 12%	1 505
R 426A	9836		R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 5,1% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 93% R 600 (CH <sub>3</sub> -CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>3</sub> ): 1,3% R 601a (CH <sub>3</sub> -CH(CH <sub>3</sub> )-CH <sub>2</sub> -CH <sub>3</sub> ): 0,6%	1 508
R 427A	9840	: Forane FX100 (Forane 427A)	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 15% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 25% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 50% R 143a (CH <sub>3</sub> CF <sub>3</sub> ): 10%	2 138
R 429A	9874		R 152a (CHF <sub>2</sub> -CH <sub>3</sub> ): 10% R E170 (CH <sub>3</sub> -O-CH <sub>3</sub> ): 60% R 600a (CH(CH <sub>3</sub> ) <sub>3</sub> ): 30%	14
R 430A	9851		R 152a (CHF <sub>2</sub> -CH <sub>3</sub> ): 76% R 600a (CH(CH <sub>3</sub> ) <sub>3</sub> ): 24%	95
R 431A	9852		R 152a (CHF <sub>2</sub> -CH <sub>3</sub> ): 29% R 290 (CH <sub>3</sub> -CH <sub>2</sub> -CH <sub>3</sub> ): 71%	38
R 434A	9845	: RS-45	R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 63,2% R 143a (CH <sub>3</sub> -CF <sub>3</sub> ): 18% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 16% R 600a (CH(CH <sub>3</sub> ) <sub>3</sub> ): 2,8%	3 245
R 435A	9853		R 152a (CHF <sub>2</sub> -CH <sub>3</sub> ): 20% R E170 (CH <sub>3</sub> -O-CH <sub>3</sub> ): 80%	26
R 437A	9841	: Isceon MO49Plus	R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 19,5% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 78,5% R 600 (CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub> ): 1,4% R 601 (CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub> ): 0,6%	1 805
R 438 A	9842	: Isceon MO99	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 8,5% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 45% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 44,2% R 600 (CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub> ): 1,7% R 601a (CH <sub>3</sub> CH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>3</sub> ): 0,6%	2 265
R 439A	9854		R 32 (CH <sub>2</sub> F <sub>2</sub> ): 50% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 47% R 600a (CH(CH <sub>3</sub> ) <sub>3</sub> ): 3%	1 983
R 440A	9856		R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 1,6% R 152a (CHF <sub>2</sub> -CH <sub>3</sub> ): 97,8% R 290 (CH <sub>3</sub> -CH <sub>2</sub> -CH <sub>3</sub> ): 0,6%	144
R 442A	9857	: RS 50	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 31% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 31% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 30% R 152a (CHF <sub>2</sub> -CH <sub>3</sub> ): 3% R 227ea (CF <sub>3</sub> -CHF-CF <sub>3</sub> ): 5%	1 888

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R 444A	9859	: Mexichem AC5	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 12% R 152a (CHF <sub>2</sub> -CH <sub>3</sub> ): 5% R 1234ze (E) (CF <sub>3</sub> -CH=CHF(E)): 83%	93
R 444B	9860	: Solstice L-20	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 41,5% R 152a (CHF <sub>2</sub> -CH <sub>3</sub> ): 10% R 1234ze (E) (CF <sub>3</sub> -CH=CHF(E)): 48,5%	296
R 445A	9875	: Mexichem AC6	R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 9% R 1234ze (E) (CF <sub>3</sub> -CH=CHF(E)): 85% R 744 (CO <sub>2</sub> ): 6%	135
R 446A	9876		R 32 (CH <sub>2</sub> F <sub>2</sub> ): 68% R 1234ze (E) (CHF=CH-CF <sub>3</sub> (E)): 29% R 600 (CH <sub>3</sub> -CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>3</sub> ): 3%	461
R 447A	9877	: Solstice L-41	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 68% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 3,5% R 1234ze (E) (CHF=CH-CF <sub>3</sub> (E)): 28,5%	583
R 447B	9889	: Solstice L-41z	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 68% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 8% R 1234ze (E) (CHF=CH-CF <sub>3</sub> (E)): 24%	741
R 448A	9878	: Solstice N40	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 26% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 26% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 21% R 1234yf (CH <sub>2</sub> =CF-CF <sub>3</sub> ): 20% R 1234ze (E) (CHF=CH-CF <sub>3</sub> (E)): 7%	1 387
R 449A	9879	: Opteon XP40	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 24,3% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 24,7% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 25,7% R 1234yf (CH <sub>2</sub> =CF-CF <sub>3</sub> ): 25,3%	1 397
R 450A	9880	: Solstice N13	R 1234ze (E) (CHF=CH-CF <sub>3</sub> (E)): 58% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 42%	605
R 451A	9881		R 1234yf (CH <sub>2</sub> =CF-CF <sub>3</sub> ): 89,8% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 10,2%	149
R 451B	9882		R 1234yf (CH <sub>2</sub> =CF-CF <sub>3</sub> ): 88,8% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 11,2%	164
R 452A	9883	: Opteon XP44	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 11% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 59% R 1234yf (CH <sub>2</sub> =CF-CF <sub>3</sub> ): 30%	2 140
R 452B	9886	: z.B. Opteon XL55	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 67% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 7% R 1234yf (CH <sub>2</sub> =CF-CF <sub>3</sub> ): 26%	698
R 454A	9884	: Opteon XL40	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 35% R 1234yf (CH <sub>2</sub> =CF-CF <sub>3</sub> ): 65%	239
R 454B	9885	: Opteon XL41	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 68,9% R 1234yf (CH <sub>2</sub> =CF-CF <sub>3</sub> ): 31,1%	466
R 454C	9887	: Opteon XL20	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 21,5% R 1234yf (CH <sub>2</sub> =CF-CF <sub>3</sub> ): 78,5%	148
R 455A	9888	: Solstice L40X	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 21,5% R 1234yf (CH <sub>2</sub> =CF-CF <sub>3</sub> ): 75,5% R 744 (CO <sub>2</sub> ): 3%	148
R 456A	9890	: AC5X	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 6% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): : 45% R 1234ze (E) (CHF=CH-CF <sub>3</sub> ): 49%	687
R 457A	9891	: ARM-20a	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 18% R 152a (CH <sub>3</sub> -CHF <sub>2</sub> ): 12% R 1234yf (CH <sub>2</sub> =CF-CF <sub>3</sub> ): 70%	139
R 459A	9892	: ARM-71	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 68% R 1234yf (CH <sub>2</sub> =CF-CF <sub>3</sub> ): 26% R 1234ze (E) (CF <sub>3</sub> -CH=CHF): 6%	460
R 459B	9893	: LTR11	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 21% R 1234yf (CH <sub>2</sub> =CF-CF <sub>3</sub> ): 69% R 1234ze (E) (CF <sub>3</sub> -CH=CHF): 10%	145
R 460A	9894	: LTR10	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 12% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 52% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 14 % R 1234ze (E) (CHF=CH-CF <sub>3</sub> ): 22%	2 103
R 460B	9895	: LTR4X	R 32 (CH <sub>2</sub> F <sub>2</sub> ): 28% R 125 (CHF <sub>2</sub> -CF <sub>3</sub> ): 25% R 134a (CF <sub>3</sub> -CH <sub>2</sub> F): 20% R 1234ze (E) (CHF=CH-CF <sub>3</sub> ): 27%	1 352

