

Regulation (EU) No 517/2014 of the European Parliament and of the Council of 16 April 2014 on fluorinated greenhouse gases and repealing Regulation (EC) No 842/2006 (Text with EEA relevance)

Changes to legislation: There are currently no known outstanding effects for the Regulation (EU) No 517/2014 of the European Parliament and of the Council, ANNEX IV. (See end of Document for details)

ANNEX IV **U.K.****METHOD OF CALCULATING THE TOTAL GWP OF A MIXTURE**

The GWP of a mixture is calculated as a weighted average, derived from the sum of the weight fractions of the individual substances multiplied by their GWP, unless otherwise specified, including substances that are not fluorinated greenhouse gases.

$$\Sigma (\text{Substance X \%} \times \text{GWP}) + (\text{Substance Y \%} \times \text{GWP}) + \dots (\text{Substance N \%} \times \text{GWP})$$

where % is the contribution by weight with a weight tolerance of +/- 1 %.

For example: applying the formula to a blend of gases consisting of 60 % dimethyl ether, 10 % HFC-152a and 30 % isobutane:

$$\Sigma (60 \% \times 1) + (10 \% \times 124) + (30 \% \times 3)$$

→ Total GWP = 13,9

The GWP of the following non-fluorinated substances are used to calculate the GWP of mixtures. For other substances not listed in this annex a default value of 0 applies.

Substance			GWP^a
Common name	Industrial designation	Chemical Formula	
methane		CH ₄	25
nitrous oxide		N ₂ O	298
dimethyl ether		CH ₃ OCH ₃	1
methylene chloride		CH ₂ Cl ₂	9
methyl chloride		CH ₃ Cl	13
chloroform		CHCl ₃	31
ethane	R-170	CH ₃ CH ₃	6
propane	R-290	CH ₃ CH ₂ CH ₃	3
butane	R-600	CH ₃ CH ₂ CH ₂ CH ₃	4
isobutane	R-600a	CH(CH ₃) ₂ CH ₃	3
pentane	R-601	CH ₃ CH ₂ CH ₂ CH ₂ CH ₃	5 ^b
isopentane	R-601a	(CH ₃) ₂ CHCH ₂ CH ₃	5 ^b
ethoxyethane (diethyl ether)	R-610	CH ₃ CH ₂ OCH ₂ CH ₃	4
methyl formate	R-611	HCOOCH ₃	25
hydrogen	R-702	H ₂	6

a Based on the Fourth Assessment Report adopted by the Intergovernmental Panel on Climate Change, unless otherwise indicated.

b Substance not listed in the Fourth Assessment Report adopted by the Intergovernmental Panel on Climate Change, default value on the basis of the GWPs of other hydrocarbons.

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ammonia	R-717	NH ₃	0
ethylene	R-1150	C ₂ H ₄	4
propylene	R-1270	C ₃ H ₆	2
cyclopentane		C ₅ H ₁₀	5 ^b

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