

# Fluorocarbons Updated July 2019

Links to the ECHA Substance Information Infocards providing access REACH and C&L data. WGK classifications

*For MSDSs contact EFCTC member companies or suppliers directly or via their websites*

## Major HFC – HFO/HCFO/HBFO – HCFC molecules

### Major HFC molecules

Designation	Complete Name	Formula	CAS number	EC/ List number	ECHA Substance Infocard [1] Link	WGK number and classification [2]	
						Registration Number	Classification
HFC-23	trifluoromethane	CHF <sub>3</sub>	75-46-7	200-872-4	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.000.794">https://echa.europa.eu/substance-information/-/substanceinfo/100.000.794</a>	4380	1
HFC-32	difluoromethane	CH <sub>2</sub> F <sub>2</sub>	75-10-5	200-839-4	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.000.764">https://echa.europa.eu/substance-information/-/substanceinfo/100.000.764</a>	4068	1
HFC-125	pentafluoroethane	CHF <sub>2</sub> CF <sub>3</sub>	354-33-6	206-557-8	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.005.962">https://echa.europa.eu/substance-information/-/substanceinfo/100.005.962</a>	4066	1

HFC-134a	1,1,1,2-tetrafluoroethane	CH <sub>2</sub> FCF <sub>3</sub>	811-97-2	212-377-0	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.011.252">https://echa.europa.eu/substance-information/-/substanceinfo/100.011.252</a>	2350	1
HFC-143a	1,1,1-trifluoroethane	CH <sub>3</sub> CF <sub>3</sub>	420-46-2	206-996-5	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.006.361">https://echa.europa.eu/substance-information/-/substanceinfo/100.006.361</a>	2782	1
HFC-152a	1,1-difluoroethane	CH <sub>3</sub> CHF <sub>2</sub>	75-37-6	200-866-1	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.000.788">https://echa.europa.eu/substance-information/-/substanceinfo/100.000.788</a>	4198	1
HFC-227ea	1,1,1,2,3,3,3-heptafluoropropane	CF <sub>3</sub> CHF <sub>2</sub> CF <sub>3</sub>	431-89-0	207-079-2	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.006.437">https://echa.europa.eu/substance-information/-/substanceinfo/100.006.437</a>	4098	1
HFC-236fa	1,1,1,3,3,3-hexafluoropropane	CF <sub>3</sub> CH <sub>2</sub> CF <sub>3</sub>	690-39-1	425-320-1	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.102.378">https://echa.europa.eu/substance-information/-/substanceinfo/100.102.378</a>	7635	1
HFC-245fa	1,1,1,3,3-pentafluoropropane	CHF <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	460-73-1	419-170-6	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.101.793">https://echa.europa.eu/substance-information/-/substanceinfo/100.101.793</a>	3524	1
HFC-365mfc	1,1,1,3,3-pentafluorobutane	CF <sub>3</sub> CH <sub>2</sub> CF <sub>2</sub> CH <sub>3</sub>	406-58-6	430-250-1	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.102.859">https://echa.europa.eu/substance-information/-/substanceinfo/100.102.859</a>	4099	1
HFC-43-10mee	1,1,1,2,2,3,4,5,5,5-decafluoropentane	CF <sub>3</sub> CHFCH <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	138495-42-8	420-640-8	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.101.932">https://echa.europa.eu/substance-information/-/substanceinfo/100.101.932</a>	2034	1

### Major HFO/HCFO/HBFO molecules

Designation	Complete Name	Formula	CAS number	EC/ List number	ECHA Substance Infocard [1] Link	WGK number and classification [2]	
						Registration Number	Classification
<b>HFOs</b>							
HFO-1234yf	2,3,3,3- tetrafluoroprop-1-ene	CF <sub>3</sub> CF=CH <sub>2</sub>	754-12-1	468-710-7	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.104.879">https://echa.europa.eu/substance-information/-/substanceinfo/100.104.879</a>	7910	1
HFO-1234ze(E)	Trans-1,3,3,3-tetrafluoroprop-1-ene	Trans- CF <sub>3</sub> CH=CFH	29118-24-9	810-135-4	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.238.116">https://echa.europa.eu/substance-information/-/substanceinfo/100.238.116</a>	Not Listed	
HFO-1336mzz(Z)	Cis-1,1,1,4,4,4-hexafluorobut-2-ene	Cis-CF <sub>3</sub> CH=CHCF <sub>3</sub>	692-49-9	700-651-7	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.217.885">https://echa.europa.eu/substance-information/-/substanceinfo/100.217.885</a>	Not Listed	
HFO- 1336mzz(E)	Trans-1,1,1,4,4,4-hexafluorobut-2-ene	Trans-CF <sub>3</sub> CH=CHCF <sub>3</sub>	66711-86-2	811-213-0	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.241.450">https://echa.europa.eu/substance-information/-/substanceinfo/100.241.450</a>	Not Listed	
<b>HCFOs</b>							
HCFO-1224yd(Z)	2,3,3,3 Tetrafluoro-1-chloroprop-1-ene	CF <sub>3</sub> -CF=CHCl	111512-60-8	813-937-2	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.246.694">https://echa.europa.eu/substance-information/-/substanceinfo/100.246.694</a>	Not Listed	

HCFO-1233zd(E)	Trans 1-Chloro-3,3,3-trifluoroprop-1-ene	Trans-CHCl=CHCF <sub>3</sub>	2730-43-0	688-906-8	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.215.615">https://echa.europa.eu/substance-information/-/substanceinfo/100.215.615</a>	Not Listed	
<b>HBFO</b>							
HBFO-1233xfB	2-bromo-3,3,3-trifluoropropene	CF <sub>3</sub> CBr=CH <sub>2</sub>	1514-82-5	627-872-0	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.156.193">https://echa.europa.eu/substance-information/-/substanceinfo/100.156.193</a>	Not Listed	

### Major HCFC molecules

Designation	Complete Name	Formula	CAS number	EC/ List number	ECHA Substance Infocard [1] Link	WGK number and classification [2]	
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HCFC-22	chlorodifluoromethane	CHClF <sub>2</sub>	75-45-6	200-871-9	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.000.793">https://echa.europa.eu/substance-information/-/substanceinfo/100.000.793</a>	2449	1
HCFC-123	2,2-dichloro-1,1,1,1-trifluoroethane	CHCl <sub>2</sub> CF <sub>3</sub>	306-83-2	206-190-3	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.005.629">https://echa.europa.eu/substance-information/-/substanceinfo/100.005.629</a>	2518	1

HCFC-124	1-chloro-1,2,2,2-tetrafluoroethane	CHClFCF <sub>3</sub>	2837-89-0	220-629-6	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.018.754">https://echa.europa.eu/substance-information/-/substanceinfo/100.018.754</a>	2519	1
HCFC-141b	1,1-dichloro-1-fluoro-ethane	CH <sub>3</sub> CCl <sub>2</sub> F	1717-00-6	404-080-1	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.100.575">https://echa.europa.eu/substance-information/-/substanceinfo/100.100.575</a>	2280	1
HCFC-142b	1-chloro-1,1 - difluoro-ethane	CH <sub>3</sub> CClF <sub>2</sub>	75-68-3	200-891-8	<a href="https://echa.europa.eu/substance-information/-/substanceinfo/100.000.811">https://echa.europa.eu/substance-information/-/substanceinfo/100.000.811</a>	2811	1

## NOTES

- The ECHA Substance information Infocards** are automatically generated based on industry data. It provides links to the C&L Inventory (CLP) and the REACH Registration dossier which are updated by suppliers if new relevant information becomes available. From ECHA Website 'An Infocard is a dissemination tool introduced by the European Chemical Agency (ECHA) to make the technical information published from the Agency's substance databases more accessible to the general public. In accordance with ECHA's legal obligations to make (non-confidential) information on chemicals publicly available, the Infocard functions as a 'first tier' in disseminating information from ECHA's databases. The Infocard serves as a high-level summary for a broad public, consisting of information that is most relevant to an audience of consumers, downstream users and professionals active in the chemical industry. As an Agency, ECHA aims to enhance the safe handling of chemicals for humans and the environment, while at the same time promoting innovation and competitiveness in the chemical sector. With the Infocard and related dissemination tools such as the Brief Profile (the 'second tier'), the Agency wishes to make people more aware of the risks to which they may be exposed, thus encouraging an overall safer use of chemicals. The Infocard's main user functionalities: • Highlights ECHA's preferred substance name and main substance identifiers in one location. • Presents key substance information in a user friendly and easily printable format. • Allows direct access to detailed substance information through the Brief Profile icon. • Quickly shows the most prominent hazardous and critical properties of a substance. • Permits tracking substances through the RSS feed. • Easy access to legislative and safe use information associated with the substance. • Learn more on manufactured/imported tonnage and sectors/types of products and articles in which the substance is used.'
- WATER HAZARD CLASSIFICATION** The classification is committed according to the German "Administrative Regulation on the Classification of Substances Hazardous to Waters into Water Hazard Classes" (Verwaltungsvorschrift wassergefährdende Stoffe – VwVwS). Substances and

mixtures can pose a hazard to water bodies. To protect the water bodies from detrimental changes to their characteristics it is required that substances and mixtures that are handled or stored in facilities in Germany are classified for their water-hazardous properties. See <https://www.umweltbundesamt.de/en/topics/chemicals/substances-hazardous-to-waters>. There are three water hazard classes (WGK):

- 1: slightly hazardous to water,
- 2: obviously hazardous to water
- 3: highly hazardous to water.

Furthermore, substances can be classified as non-hazardous to water (nwg) or are deemed hazardous to water in general (awg). You can search for WGK of currently published WGK classifications at the [Rigoletto web data base](#). Substances without a published WGK classification in neither the Bundesanzeiger nor on the Rigoletto data base must be regarded as highly hazardous to water (WGK 3) for reasons of precaution.