

TABLE 3.8
PROPERTIES OF CRYOGENIC FLUIDS

Gas	Normal B.P.		Volume Expansion to Gas	Flammable	Toxic	Odor
	°C	K ^a				
Helium-3	-269.9	3.2	757 to 1	No	No ^C	No
Helium-4	-268.9	4.2	757 to 1	No	No ^C	No
Hydrogen	-252.7	20.4	851 to 1	Yes	No ^C	No
Deuterium	-249.5	23.6	--	Yes	No ^C	No
Tritium	-248.0	25.1	--	Yes	Radioactive	No
Neon	-245.9	27.2	1438 to 1	No	No ^C	No
Nitrogen	-195.8	77.3	696 to 1	No	No ^C	No
Carbon monoxide	-192.0	81.1	--	Yes	Yes	No
Fluorine	-187.0	86.0	888 to 1	No	Yes	Sharp
Argon	-185.7	87.4	847 to 1	No	No ^C	No
Oxygen	-183.0	90.1	860 to 1	No	No ^d	No
Methane	-161.4	111.7	578 to 1	Yes	No ^C	No
Krypton	-151.8	121.3	700 to 1	No	No ^C	No
Tetrafluoromethane	-128	145	--	No	No ^C	No
Ozone	-111.9	161.3	--	No	Yes	Yes
Xenon	-109.1	164.0	573 to 1	No	No ^C	No
Ethylene	-103.8	169.3	--	Yes	No ^C	Sweet
Boron trifluoride	-100.3	172.7	--	No	Yes	Pungent
Nitrous oxide	-89.5	183.6	666 to 1	No	Yes	Sweet
Ethane	-88.3	184.8	--	Yes	No ^C	No
Hydrogen chloride	-85.0	188.0	--	No	Yes	Pungent
Acetylene	-84.0	189.1	--	Yes	Yes	Garlic
Fluoroform	-84.0	189.1	--	No	No ^C	No
1, 1-Difluoroethylene	-83.0	190.0	--	Yes	No ^C	Faint ether
Chlorotrifluoromethane	-81.4	191.6	--	No	Yes	Mild
Carbon dioxide	-78.5 ^b	194.6	553 to 1	No	No ^C	No

K^a = -273.16 °C = -459.69 °F

^bSublimes.

^CNontoxic, but can act as an asphyxiant by displacing air needed to support life. As with most chemicals, even harmless materials can be toxic or poisonous if taken in sufficient quantities under the right circumstances.

^dPure oxygen is toxic at pressures greater than two atmospheres absolute.