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C_4F_{10}

C_4F_{10}, Perfluoro-n-butane, is one of the two Cherenkov radiators to be used in the RICH1 detector at the LHCb experiment. Its refractive index n = 1.0014 in gas form makes it suitable for charged particles identification in the intermediate momentum range 10-60 GeV/c.

IUPAC name	1,1,1,2,2,3,3,4,4,4-decafluorobutane	
alternate names	butane, decafluoro-; decafluorobutane; perfluorobutane; sonazoid	
refractive index n @ =400nm	1.0014	O. Ullaland, *Fluid systems for RICH detectors*, Nucl. Instrum. Meth. A 553 (2005) 107
n parametrization @ 0°C and 101325 Pa	(n-1) 10^6=0.25324/(73.7^{-2}-(/nm)$^{-2}$)	O. Ullaland, *Fluid systems for RICH detectors*, Nucl. Instrum. Meth. A 553 (2005) 107
radiator length	95 cm	LHCb collaboration, *The LHCb Detector at the LHC*, Journal of Instrumentation, Vol. 3, No. 08. (2008), pp. S08005-S08005
photon yield for ~1 charged particles	~ 30	LHCb collaboration, *The LHCb Detector at the LHC*, Journal of Instrumentation, Vol. 3, No. 08. (2008), pp. S08005-S08005
momentum range	10-60 GeV/c	
gas price (2000)	930 CHF / m^3	M. Bosteels et al., *LHCb RICH gas system proposal*, LHCb-2000-079
melting point (1 bara)	-128.2 °C	M. Bosteels et al., *LHCb RICH gas system proposal*, LHCb-2000-079
boiling point (1 bara)	-1.9 °C	M. Bosteels et al., *LHCb RICH gas system proposal*, LHCb-2000-079

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