Oxygen-18 (18O) in the form of water for Medical Applications

Description

Oxygen-18 is a natural, stable isotope of oxygen and one of the environmental isotopes. 18 O is an important precursor for the production of fluorodeoxyglucose (FDG) used in positron emission tomography (PET). Generally, in the radiopharmaceutical industry, enriched water (H 218 O) is bombarded with hydrogen ions in either a cyclotron or linear accelerator, producing fluorine-18.

Isotopic analysis	Units	Value	Limit
O-18	Atom %	98.2	≥98.0%
O-17	Atom %	0.60	2.0%
O-16	Atom %	1.20	2.0%
Chemical Purity	m/m	99.99%+	99.99%+
Electrical Conductivity		1.17	3.0
Pyrogen	EU/ml	0.25	0.25
Sterility Test		Passed	Passed
pH		6.47	6.0~7.0
Total Organic Carbon (TOC)	mg/L	1.0	2.0
Fluoride (F)	mg/L	ND (0.006)	0.1
Chloride (Cl)	mg/L	ND (0.007)	0.1
Bromide (Br)	mg/L	ND (0.016)	0.1
Lodide (I)	mg/L	ND (0.002)	0.1
Calcium (Ca)	mg/L	ND (0.02)	0.1
Magnesium (Mg)	mg/L	ND (0.002)	0.05

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Isotopic analysis	Units	Value	Limit
Sodium (Na)	mg/L	ND (0.01)	0.5
Potassium (K)	mg/L	ND (0.05)	0.5
Copper (Cu)	mg/L	0.00495	0.05
Iron (Fe)	mg/L	0.00665	0.05
Zinc (Zn)	mg/L	0.00898	0.05
Phosphate (PO4)	mg/L	0.01	0.05
Nitrate (NO3)	mg/L	ND (0.016)	0.05
Sulfate (SO4)	mg/L	ND (0.018)	0.1
Ammonium (NH4)	mg/L	ND (0.02)	1

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