

¹⁷O in the form of gas and water for magnetic resonance imaging (MRI) and scientific applications



Nuclear magnetic resonance (NMR) technology is accelerating a revolution in medical imaging.

NMR technology based on Oxygen-17 uses the magnetic properties of atomic nuclei that occur naturally in the body.

Oxygen-17 (¹⁷O) is now used for diagnostic applications and medical research to create a new generation of NMR Images.

New developments with ¹⁷O enrich the quality of information about living tissue to enhance the practice of medicine in the fields of cardiology and neurology among others.

Our Oxygen-17 products are manufactured in accordance with cGMP regulations and with the requirements of 21 Code of Federal Regulations: PARTS 210 and 211.



NUKEM Isotopes Imaging GmbH

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Oxygen-17 in the form of gas

Specification

Physical and chemical properties:

- Material ^{17}O in the form of gas.
- Enrichment $^{17}\text{O} > 70\text{at}\%$
- Purity $> 99.9\%$
- Volume 5L, 10L and 20L with a CGA 540 valve.
1L and 2L with a 1/4" NPT valve

Impurities in vppm

| | |
|-----------------|------------|
| CO | ≤ 10 |
| CO ₂ | ≤ 100 |
| H ₂ | ≤ 50 |
| N ₂ | ≤ 500 |

Oxygen-17 in the form of water

Specification

Physical and chemical properties:

- Material ^{17}O in the form of water.
- Enrichment $^{17}\text{O} > 10\text{at}\%$
 $^{17}\text{O} > 20\text{at}\%$
 $^{17}\text{O} > 40\text{at}\%$
 $^{17}\text{O} > 50\text{at}\%$
 $^{17}\text{O} > 60\text{at}\%$
 $^{17}\text{O} > 70\text{at}\%$
 $^{17}\text{O} > 90\text{at}\%$
- Purity $> 99.9\%$
- pH 6 - 8

Impurities in $\mu\text{g/g}$

| | |
|----|---------------|
| Al | $\leq 0,05^*$ |
| Br | $\leq 0,5^*$ |
| Ca | $\leq 0,1^*$ |
| Cl | $\leq 0,5^*$ |

Impurities in $\mu\text{g/g}$

| | |
|-----------------|---------------|
| Co, Cr, Cu | $\leq 0,01^*$ |
| F | $\leq 0,05^*$ |
| Fe | $\leq 0,01^*$ |
| K | $\leq 0,1^*$ |
| Mg | $\leq 0,05^*$ |
| Mn | $\leq 0,01^*$ |
| Na | $\leq 1^*$ |
| Ni | $\leq 0,01^*$ |
| NO ₂ | $\leq 0,1^*$ |
| NO ₃ | $\leq 0,05^*$ |
| Si | $\leq 1^*$ |
| SO ₄ | $\leq 0,1^*$ |
| Pb | $\leq 0,01^*$ |
| PO ₄ | $\leq 0,05^*$ |
| Zn | $\leq 0,05^*$ |

* applicable for 10at% enriched and 20at% enriched ^{17}O water only!

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