

Mo-99 Fact Sheet

Molybdenum-99 Fission Radiochemical

Sodium Molybdate (Mo-99) (fission)

Half-Life: 66 hours

Molybdenum-99 Fission Radiochemical

Molybdenum-99 is used to manufacture technetium-99m generators. Technetium-99m is the most widely used isotope in Nuclear Medicine. Technetium-99m generators short half-life of six hours and the energy emitted (140 keV) make it an ideal imaging agent. MDS Nordion has been a reliable supplier of molybdenum-99 to the Nuclear Medicine community for over 25 years.

MDS Nordion has a unique base of technical expertise and production capabilities. State-of-the-art facilities provide a reliable supply of isotopes to customers around the world. Our strong focus on customer service and quality has made us a world leader.

Process Data

Nuclear Reaction

^{235}U (n,f)

Chemical Processing

Chromatographic/precipitation purification

Assay

High resolution gamma spectrometry

Product Specification

Chemical Form⁽¹⁾

^{99}Mo as molybdate in 0.2N \pm 0.1N NaOH solution

Specific Activity⁽²⁾

No carrier added

Activity Concentration⁽²⁾

≥ 350 mCi/mL

Radiopurity⁽³⁾

Gamma: $^{131}\text{I} \leq 5 \times 10^{-2}$ $\mu\text{Ci/mCi } ^{99}\text{Mo}$
 $^{103}\text{Ru} \leq 5 \times 10^{-2}$ $\mu\text{Ci/mCi } ^{99}\text{Mo}$
 $^{132}\text{Te} \leq 5 \times 10^{-2}$ $\mu\text{Ci/mCi } ^{99}\text{Mo}$

Other Gammas (excluding ^{99m}Tc):

$\leq 5 \times 10^{-2}$ $\mu\text{Ci/mCi } ^{99}\text{Mo}$

Beta: $^{89}\text{Sr} \leq 6 \times 10^{-4}$ $\mu\text{Ci/mCi } ^{99}\text{Mo}$

$^{90}\text{Sr} \leq 1.5 \times 10^{-5}$ $\mu\text{Ci/mCi } ^{99}\text{Mo}$

Alpha: $\leq 1 \times 10^{-7}$ $\mu\text{Ci/mCi } ^{99}\text{Mo}$

(1) The product is optionally stabilized by the addition of 0.2-0.4% NaOCl by volume, or as requested. The process assures a 0.2 \pm 0.05 N NaOH finished product and is verified by a stability program.

(2) Activity specification is at customer's calibration time.

(3) Radiopurity specifications to be met at 4 days from noon ET day of shipment.

Packaging

Nalgene bottle – screw cap polyethylene bottle (30 mL, 60 mL, 125 mL, 250 mL)
(Other options are available).

Availability

Please inquire

Product Origin

Ottawa, Canada

World Class Delivery Service

MDS Nordion has a world class distribution system that includes a unique, software-based order management system. Carefully managed transportation logistics ensure products reach their destination on time.

Pricing

List Price – US\$1,500/Ci
(6 day/12:00ET)

Molybdenum-99 Decay Table Half-Life: 66 hours

HOURS:	0	1	2	3	4	5	6	7	8	9
0	1.0000	0.9896	0.9792	0.9690	0.9589	0.9488	0.9389	0.9291	0.9194	0.9098
10	0.9003	0.8909	0.8816	0.8724	0.8633	0.8542	0.8453	0.8365	0.8278	0.8191
20	0.8105	0.8021	0.7937	0.7854	0.7772	0.7691	0.7610	0.7531	0.7452	0.7374
30	0.7297	0.7221	0.7146	0.7071	0.6997	0.6924	0.6852	0.6780	0.6709	0.6639
40	0.6570	0.6501	0.6433	0.6366	0.6300	0.6234	0.6169	0.6104	0.6040	0.5977
50	0.5915	0.5853	0.5792	0.5731	0.5672	0.5612	0.5554	0.5496	0.5438	0.5381
60	0.5325	0.5270	0.5215	0.5160	0.5106	0.5053	0.5000	0.4948	0.4896	0.4845
70	0.4794	0.4744	0.4695	0.4646	0.4597	0.4549	0.4502	0.4454	0.4408	0.4362
80	0.4316	0.4271	0.4227	0.4182	0.4139	0.4096	0.4053	0.4010	0.3968	0.3927
90	0.3886	0.3845	0.3805	0.3765	0.3726	0.3687	0.3649	0.3611	0.3573	0.3536
100	0.3499	0.3462	0.3426	0.3390	0.3355	0.3320	0.3285	0.3251	0.3217	0.3183
110	0.3150	0.3117	0.3084	0.3052	0.3020	0.2989	0.2957	0.2927	0.2896	0.2866
120	0.2836	0.2806	0.2777	0.2748	0.2719	0.2691	0.2663	0.2635	0.2607	0.2580
130	0.2553	0.2526	0.2500	0.2474	0.2448	0.2422	0.2397	0.2372	0.2347	0.2323
140	0.2299	0.2275	0.2251	0.2227	0.2204	0.2181	0.2158	0.2136	0.2113	0.2091
150	0.2069	0.2048	0.2026	0.2005	0.1984	0.1964	0.1943	0.1923	0.1903	0.1883
160	0.1863	0.1844	0.1824	0.1805	0.1786	0.1768	0.1749	0.1731	0.1713	0.1695
170	0.1677	0.1660	0.1642	0.1625	0.1608	0.1592	0.1575	0.1558	0.1542	0.1526
180	0.1510	0.1494	0.1479	0.1463	0.1448	0.1433	0.1418	0.1403	0.1388	0.1374
190	0.1360	0.1345	0.1331	0.1317	0.1304	0.1290	0.1277	0.1263	0.1250	0.1237

The half-life values stated are as of time of publication. MDS Nordion values may vary.

Corporate Headquarters:

447 March Road
Ottawa, ON, Canada K2K 1X8
Tel: +1 613 592 2790
Fax: +1 613 592 6937
isotopeorders@mdsinc.com
www.mdsnordion.com

Regional Office:

4004 Wesbrook Mall
Vancouver, BC, Canada V6T 2A3
Tel: +1 604 228 8952
Fax: +1 604 228 5990

European Office:

Zoning Industriel
Avenue de l'Espérance
B-6220 Fleurus, Belgium
Tel: +32 71 82 35 67
Fax: +32 71 82 36 66