

## 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. Nordion has been a reliable supplier of molybdenum-99 to the Nuclear Medicine community for over 25 years.

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

$^{235}\text{U}$  (n,f)

##### Chemical Processing

Chromatographic/precipitation purification

##### Assay

High resolution gamma spectrometry

#### PRODUCT SPECIFICATION

##### Chemical Form<sup>(1)</sup>

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

##### Specific Activity<sup>(2)</sup>

No carrier added

##### Activity Concentration<sup>(2)</sup>

$\geq 350$  mCi/mL

##### Radiopurity<sup>(3)</sup>

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  $^{99\text{m}}\text{Tc}$ ):

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

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 reference date.

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

Please note that the radiochemicals listed are not tested for sterility or pyrogenicity. Verification of their suitability for use in humans is the sole responsibility of the purchaser.

#### PACKAGING

- Nalgene bottle – screw cap polyethylene bottle (30 mL, 60 mL, 125 mL, 250 mL)
- Glass bottle – screw cap (125 mL)
- Safety-coated glass bottle – screw cap (125 mL)

#### AVAILABILITY

Please inquire

#### PRODUCT ORIGIN

Ottawa, Canada

#### WORLD CLASS DELIVERY SERVICE

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. Nordion values may vary.

### CORPORATE HEADQUARTERS

447 March Road  
Ottawa, ON, Canada K2K 1X8  
Tel: +1 613 592 2790  
Fax: +1 613 592 6937

### REGIONAL OFFICE

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

### ASIA PACIFIC SALES OFFICES

#### Hong Kong

901 Matheson Centre  
3 Matheson Street  
Causeway Bay, Hong Kong  
Tel: +852 2827 8666  
Fax: +852 2827 8302

#### Japan

Room 905, Tokyo Royal Plaza  
1-18-11, Uchi-kanda, Chiyoda-ku  
Tokyo 101-0047, Japan  
Tel: +81 3 5283 6872  
Fax: +81 3 5283 6873

### EUROPEAN OFFICE

Zoning Industriel  
Avenue de l'Espérance  
B-6220 Fleurus, Belgium  
Tel: +32 71 82 35 86  
Fax: +32 71 82 36 66

[www.nordion.com](http://www.nordion.com)