

# I-131 Fact Sheet

## Iodine-131 (n, gamma) Radiochemical Sodium Iodide Solution

Sodium Iodide (I-131)

Half-Life: 8.02 days

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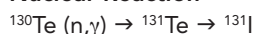
N-gamma iodine-131 is produced by the irradiation of tellurium-130 in a nuclear reactor.

Iodine-131, with a half-life of 8.02 days, is used for a variety of applications. These include diagnostic and therapeutic thyroid applications (in either a solution or capsule form), industrial tracers, and various research applications such as antibody labelling. Iodine-131 is also used to label antibodies for therapeutic applications in the treatment of cancers.

MDS Nordion has an unparalleled base of technical expertise and production capabilities. State-of-the-art facilities provide a reliable supply of isotopes to customers around the world.

### Process Data

#### Nuclear Reaction



#### Chemical Processing

Dry distillation of iodine from activated target into alkaline solution

#### Assay

High resolution gamma spectrometry at 364 keV

### Product Specification

#### Chemical Form

$^{131}\text{I}$  as iodide in NaOH solution containing 0.02 M  $\text{Na}_2\text{SO}_4$

#### pH

9.0 – 12

#### Specific Activity\*

No carrier added

#### Activity Concentration\*

≥ 1000 mCi/mL (high concentration)  
200 – 1000 mCi/mL (low concentration)

#### Radiopurity\*

≥ 99.9%  
Gamma:  $^{130}\text{I} \leq 0.1\%$

#### Iodates

≤ 2%

#### Heavy Metals

Te ≤ 1 µg/mL

\*Activity and radiopurity specifications are at customer's calibration time.

### Packaging

- Kontes vial – crimp cap glass V-vial (1 mL, 2 mL, 3 mL, 5 mL)
- Square glass bottle with octagonal screw cap (15 mL, 30 mL)
- Hypovial – crimp cap glass vial with septum (6 mL, 30 mL)
- Octovial (1.5 mL, 2.5 mL)  
*(Other vial options may be available).*

### Availability

Dispensed daily

### 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.

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.

## Iodine-131 Decay Table Half-Life: 8.02 days

	HOURS:	0	4	8	12	16	20	24	28	32	36	40	44
	0	1.0000	0.9857	0.9716	0.9577	0.9440	0.9305	0.9172	0.9041	0.8912	0.8784	0.8658	0.8535
	2	0.8413	0.8292	0.8174	0.8057	0.7942	0.7828	0.7716	0.7606	0.7497	0.7390	0.7284	0.7180
	4	0.7077	0.6976	0.6876	0.6778	0.6681	0.6585	0.6491	0.6398	0.6307	0.6217	0.6128	0.6040
	6	0.5954	0.5869	0.5785	0.5702	0.5620	0.5540	0.5461	0.5383	0.5306	0.5230	0.5155	0.5081
	8	0.5009	0.4937	0.4866	0.4797	0.4728	0.4661	0.4594	0.4528	0.4463	0.4400	0.4337	0.4275
	10	0.4214	0.4153	0.4094	0.4035	0.3978	0.3921	0.3865	0.3809	0.3755	0.3701	0.3648	0.3596
	12	0.3545	0.3494	0.3444	0.3395	0.3346	0.3298	0.3251	0.3205	0.3159	0.3114	0.3069	0.3025
	14	0.2982	0.2939	0.2897	0.2856	0.2815	0.2775	0.2735	0.2696	0.2657	0.2619	0.2582	0.2545
	16	0.2509	0.2473	0.2437	0.2403	0.2368	0.2334	0.2301	0.2268	0.2236	0.2204	0.2172	0.2141
DAYS	18	0.2110	0.2080	0.2050	0.2021	0.1992	0.1964	0.1936	0.1908	0.1881	0.1854	0.1827	0.1801
	20	0.1775	0.1750	0.1725	0.1700	0.1676	0.1652	0.1628	0.1605	0.1582	0.1560	0.1537	0.1515
	22	0.1494	0.1472	0.1451	0.1430	0.1410	0.1390	0.1370	0.1350	0.1331	0.1312	0.1293	0.1275
	24	0.1256	0.1239	0.1221	0.1203	0.1186	0.1169	0.1152	0.1136	0.1120	0.1104	0.1088	0.1072
	26	0.1057	0.1042	0.1027	0.1012	0.0998	0.0984	0.0970	0.0956	0.0942	0.0929	0.0915	0.0902
	28	0.0889	0.0877	0.0864	0.0852	0.0839	0.0827	0.0816	0.0804	0.0792	0.0781	0.0770	0.0759
	30	0.0748	0.0737	0.0727	0.0716	0.0706	0.0696	0.0686	0.0676	0.0667	0.0657	0.0648	0.0638
	32	0.0629	0.0620	0.0611	0.0603	0.0594	0.0586	0.0577	0.0569	0.0561	0.0553	0.0545	0.0537
	34	0.0529	0.0522	0.0514	0.0507	0.0500	0.0493	0.0486	0.0479	0.0472	0.0465	0.0458	0.0452
	36	0.0445	0.0439	0.0433	0.0427	0.0420	0.0414	0.0409	0.0403	0.0397	0.0391	0.0386	0.0380
	38	0.0375	0.0369	0.0364	0.0359	0.0354	0.0349	0.0344	0.0339	0.0334	0.0329	0.0324	0.0320

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

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