

# IGG100 $^{68}\text{Ge}/^{68}\text{Ga}$ Generator

## Product Information

### IGG100 $^{68}\text{Ge}/^{68}\text{Ga}$ Generator

The Eckert & Ziegler Isotope Products IGG100  $^{68}\text{Ge}/^{68}\text{Ga}$  Generator provides a positron emitter for the synthesis of radiolabeled compounds, independent of a cyclotron.



### Description

The Eckert & Ziegler Isotope Products (EZIP) Ionic Gallium Generator is a closed system consisting of a borosilicate glass column containing a titanium dioxide bed on which  $^{68}\text{Ge}$  is adsorbed.  $^{68}\text{Ga}$  is continuously produced by decay of its radioactive parent and is eluted with 0.1 M HCl.

This generator is designed to minimize both  $^{68}\text{Ge}$  breakthrough and metal impurities in the eluate. The elution profile of the IGG100  $^{68}\text{Ge}/^{68}\text{Ga}$  generator has been optimized for maximum activity concentration per volume.

To improve safety, reliability and simplicity, the IGG100 requires no disassembly. It is shipped ready-to-use. Both, the inlet and outlet lines use Luer female connections with attached caps for easy installation. EZIP maintains a comprehensive quality and regulatory compliance program based on a number of industry standards and regulations ensuring the production of consistently high quality products. The IGG100  $^{68}\text{Ge}/^{68}\text{Ga}$  generator device is made according to these regulated standards and good practices.

### Advantages

EZIP's IGG100  $^{68}\text{Ge}/^{68}\text{Ga}$  generator is ready-to-use as a stand-alone device and is fully shielded. The IGG100 can be easily handled and installed due to its small size and light weight. There is no metal in contact with the eluate. It can be implemented in the Modular-Lab synthesis system for research applications with  $^{68}\text{Ga}$ -peptides and is eluted fully automatic therein.

#### WARNING:

The IGG100  $^{68}\text{Ge}/^{68}\text{Ga}$  generator is a chemical grade product and not intended for use in humans. It has not been validated as a pharmaceutical product.

### Output

The generator is sold on the basis of the  $^{68}\text{Ge}$  adsorbed on the column; therefore a nominal 20 mCi generator will have  $20 \pm 15\%$  mCi of  $^{68}\text{Ge}$ . The actual  $^{68}\text{Ge}$  activity at the assay date is indicated in the Technical Data Report. A new generator in full equilibrium typically yields approximately 65% - 70%  $^{68}\text{Ga}$  or better for each elution. In practice, a generator requires at least 7 hours to achieve full yield after being eluted. Output, of course, will decrease with decay of the  $^{68}\text{Ge}$  parent. For example, after 9 months' decay (271 days), the  $^{68}\text{Ga}$  yield will be reduced by one-half.

### Breakthrough

A small amount of  $^{68}\text{Ge}$  is washed from the column with each elution.  $^{68}\text{Ge}$  breakthrough is expressed as a percentage of total  $^{68}\text{Ga}$  eluted from the column, corrected for decay. The breakthrough for a new generator at shipment is below  $1 \times 10^{-3}\%$ . When used according to these instructions, breakthrough levels should remain relatively stable for 300 elutions.

The user can significantly lower the amount and percentage of breakthrough by using only the portion of the 5 ml eluate that contains the most  $^{68}\text{Ga}$  activity. Peak activity can be determined by generating an elution profile from small fractions of the 5 ml eluate (1 ml or less). The initial profile for this generator is contained in the technical data package.

Breakthrough of  $^{68}\text{Ge}$  can increase significantly if the generator is not eluted for more than 3 days. After a break in use, it should be pre-eluted with 10 ml of 0.1 M HCl 7 to 24 hours prior to the intended use.

The initial profile for the generator is contained in the technical data package.

# IGG100 <sup>68</sup>Ge/<sup>68</sup>Ga Generator

## Technical Specifications\*

### General Data

Dimensions	130 x 130 x 191 mm (W x D x H) ( <i>height include handles</i> )
Weight	10 kg
<sup>68</sup> Ge breakthrough	<0.001 % after 300 elutions
Radiation	Average surface or contact radiation is less than 0.5 mR per hour per mCi of <sup>68</sup> Ge. For example, a 20 mCi will read 10 mR per hour maximum. For high activity generators, it is recommended that the generator be stored within auxiliary shielding to minimize dose to operating personnel.
Quality standards of production:	ISO9001

### Decay Characteristics

Half-lives	<sup>68</sup> Ge: 271 days <sup>68</sup> Ga: 68 minutes
Radiation type	Positrons: 1.90 MeV from <sup>68</sup> Ga daughter; 89 % abundance Photons: 0.51 MeV positron annihilation radiation; 178 % abundance 1.08 MeV gamma radiation; 3.2 % abundance

### Order Information

Art. no.: 3131-0902	10 mCi (370 MBq)
Art. no.: 3131-0903	20 mCi (740 MBq)
Art. no.: 3131-0901	30 mCi (1.11 GBq)
Art. no.: 3131-0904	40 mCi (1.48 GBq)
Art. no.: 3131-0900	50 mCi (1.85 GBq)
Delivery time:	10 to 12 weeks

\* Product Information is kindly provided by Eckert & Ziegler Isotope Products.

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