List of intensities predicted from the SPIRAL upgrade

Scope of this document

This document gives the intensities of the radioactive ion beam as expected from the SPIRAL upgrade, with the new FEBIAD ion source and Phoenix charge breeder. The intensities as previously available for the He, O, F, Ne, Ar, Kr elements from the Nanogan source remain valid (see http://pro.ganil-spiral2.eu/users-guide/accelerators).

The most reliable beam intensity estimates are those using ^{36}Ar @ 95 AMeV as primary beam on a graphite target, with which the FEBIAD source was recently tested, or more generally the new beams of Na, Mg, Al, P, Cl, Ar, K using any primary beam on a graphite target. Cu, Fe elements have additionally been produced with a ^{58}Ni beam. Other targets than graphite targets have to be developed and will not be used at the startup of the upgrade. Fusion-evaporation is an alternative production mechanism to fragmentation not tested yet at SPIRAL, but which may be employed rather rapidly after startup.

Estimating the radioactive ion beam intensities

The intensity estimates are the product of the in-target yield with a number of efficiencies for the SPIRAL target ion source:

(1) $Y = Y_{target} * \varepsilon_{release} * \varepsilon_{ionisation} * \varepsilon_{transport\ 1+} * \varepsilon_{1+ \rightarrow n+} * \varepsilon_{transport\ N+} * \varepsilon_{CIME}$

The different terms are explicated below:

Y_{target} is the in target yield calculated using EPAX V2 parameterization for fragmentation cross sections, and for fusion-evaporation a compilation of cross-sections from B. Blank (blank@cenbg.in2p3.fr).

$\varepsilon_{release}$ is the release efficiency, based on a parameterization of on-line data obtained at SPIRAL, ISOLDE or PARNNE, or diffusion – effusion coefficients found in the literature.

$\varepsilon_{ionisation}$ is the ionization efficiency of the FEBIAD ion source as recently measured on-line at SPIRAL [1].

$\varepsilon_{1+ \rightarrow n+}$ is the charge breeding efficiency as measured recently at LPSC with the SPIRAL booster [2]. The booster brings the 1+ charge state ions delivered by the FEBIAD ion source to the N+ charge state required by CIME for the post-acceleration. Half life losses during the charge breeding process are additionally taken into account.

$\varepsilon_{transport\ 1+}$, $\varepsilon_{transport\ N+}$, ε_{CIME} are transport efficiencies for the 1+ and N+ beams and the acceleration efficiency respectively, as they are generally observed at SPIRAL.

Such compilation was done by P. Delahaye (pierre.delahaye@ganil.fr).

[1]: P. Chauveau et al., EMIS 2015 proceedings, NIM B, in print.

[2] : L. Maunoury et al., ICIS 2015 proceedings, RSI, in print.

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Projectile fragmentation on a graphite target

Candidate beams for startup

The most reliable beam intensity estimates are those using ^{36}Ar @ 95 AMeV as primary beam on a graphite target, with which the FEBIAD source was recently tested, or more generally the new beams of Na, Mg, Al, P, Cl, Ar, K using any primary beam on a graphite target. Cu, Fe elements have additionally been produced with a ^{58}Ni beam.

13C on 12C (1200W, 75 AMeV)

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	4.0E+09	1.6E+07	2.5E+06	7.4	1.8	24.9
8He	119 ms	5.9E+07	2.1E+05	3.4E+04	4.2	1.2	16.5
8Li	840.3 ms	5.5E+09	4.2E+08	1.7E+06	16.6	1.2	24.9
9Li	178.3 ms	9.3E+08	5.6E+07	2.2E+05	13.1	1.2	24.9
7Be	53.22 d	1.6E+10	1.2E+08	4.9E+05	21.6	1.4	24.9
10Be	1.51 My	7.8E+09	7.9E+07	3.2E+05	10.7	1.2	24.8
11Be	13.81 s	1.1E+09	1.2E+07	4.8E+04	8.8	1.2	24.9

16O on 12C (1200W, 95 AMeV)

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	2.4E+09	9.4E+06	1.5E+06	7.4	1.8	24.9
8He	119 ms	2.9E+07	1.1E+05	1.6E+04	4.2	1.2	16.5
8Li	840.3 ms	3.1E+09	2.4E+08	9.5E+05	16.6	1.2	24.9
9Li	178.3 ms	4.6E+08	2.8E+07	1.1E+05	13.1	1.2	24.9
11Li	8.75 ms	1.2E+06	1.1E+04	2.7E+01	8.8	1.2	19.7
7Be	53.22 d	1.1E+10	8.4E+07	3.4E+05	21.6	1.4	24.9
10Be	1.51 My	3.9E+09	4.0E+07	1.6E+05	10.7	1.2	24.8
11Be	13.81 s	2.8E+08	3.1E+06	1.2E+04	8.8	1.2	24.9
12Be	21.5 ms	2.8E+07	7.8E+04	2.4E+02	7.4	1.2	24.9
13N	9.965 m	6.2E+09	1.0E+06	4.0E+03	14.2	1.2	24.8
13O	8.58 ms	8.5E+07	1.5E+03	2.5E+00	24.9	1.6	24.9
14O	70.598 s	1.2E+09	1.1E+07	4.4E+04	21.6	1.4	24.8
15O	122.24 s	9.7E+09	1.0E+08	4.2E+05	18.9	1.2	24.8

18O on 12C (1200W, 75 AMeV)

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	2.2E+09	8.6E+06	1.4E+06	7.4	1.8	24.9
8He	119 ms	3.3E+07	1.2E+05	1.9E+04	4.2	1.2	16.5
8Li	840.3 ms	2.9E+09	2.2E+08	8.9E+05	16.6	1.2	24.9
9Li	178.3 ms	4.9E+08	3.0E+07	1.1E+05	13.1	1.2	24.9
11Li	8.75 ms	3.6E+06	3.4E+04	8.1E+01	8.8	1.2	19.7
7Be	53.22 d	8.8E+09	6.7E+07	2.7E+05	21.6	1.4	24.9
10Be	1.51 My	3.9E+09	4.0E+07	1.6E+05	10.7	1.2	24.8
11Be	13.81 s	4.7E+08	5.1E+06	2.1E+04	8.8	1.2	24.9
12Be	21.5 ms	7.7E+07	2.2E+05	6.7E+02	7.4	1.2	24.9
14Be	4.35 ms	9.8E+05	7.7E+02	1.3E+00	5.4	1.2	21.6
13N	9.965 m	2.1E+09	3.4E+05	1.4E+03	14.2	1.2	24.8
16N	7.13 s	9.0E+09	2.4E+03	9.4E+00	9.4	1.2	24.8
17N	4.173 s	6.0E+09	7.5E+02	3.0E+00	8.3	1.2	22.9
13O	8.58 ms	1.8E+07	3.1E+02	5.2E-01	24.9	1.6	24.9
14O	70.598 s	1.9E+08	1.7E+06	6.9E+03	21.6	1.4	24.8
15O	122.24 s	1.4E+09	1.5E+07	6.0E+04	18.9	1.2	24.8

20Ne on 12C (1200W, 95 AMeV)

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	1.5E+09	5.9E+06	9.4E+05	7.4	1.8	24.9
8He	119 ms	1.8E+07	6.6E+04	1.0E+04	4.2	1.2	16.5
8Li	840.3 ms	1.9E+09	1.5E+08	5.8E+05	16.6	1.2	24.9
9Li	178.3 ms	2.8E+08	1.7E+07	6.6E+04	13.1	1.2	24.9
11Li	8.75 ms	6.6E+05	6.3E+03	1.5E+01	8.8	1.2	19.7
7Be	53.22 d	6.9E+09	5.3E+07	2.1E+05	21.6	1.4	24.9
10Be	1.51 My	2.4E+09	2.4E+07	9.8E+04	10.7	1.2	24.8
11Be	13.81 s	1.5E+08	1.6E+06	6.6E+03	8.8	1.2	24.9
12Be	21.5 ms	1.6E+07	4.5E+04	1.4E+02	7.4	1.2	24.9
14Be	4.35 ms	5.4E+04	4.2E+01	7.1E-02	5.4	1.2	21.6
13N	9.965 m	3.0E+09	4.8E+05	1.9E+03	14.2	1.2	24.8
16N	7.13 s	1.9E+09	5.0E+02	2.0E+00	9.4	1.2	24.8
17N	4.173 s	3.4E+08	4.2E+01	1.7E-01	8.3	1.2	22.9
13O	8.58 ms	3.8E+07	6.6E+02	1.1E+00	24.9	1.6	24.9
14O	70.598 s	5.2E+08	4.8E+06	1.9E+04	21.6	1.4	24.8
15O	122.24 s	3.2E+09	3.5E+07	1.4E+05	18.9	1.2	24.8
17F	64.49 s	3.7E+09	5.3E+07	2.1E+05	14.7	1.2	24.8
18F	109.771 m	9.7E+09	1.5E+08	6.0E+05	13.2	1.2	24.8
17Ne	109.2 ms	4.7E+07	5.6E+03	7.4E+01	22.9	1.2	24.8
18Ne	1.672 s	7.2E+08	5.2E+06	7.7E+04	20.5	1.2	24.8
19Ne	17.296 s	7.1E+09	1.1E+08	1.7E+06	18.4	1.2	24.8

22Ne on 12C (1200W, 80AMeV)

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	1.4E+09	5.5E+06	8.7E+05	7.4	1.8	24.9
8He	119 ms	1.8E+07	6.6E+04	1.0E+04	4.2	1.2	16.5
8Li	840.3 ms	1.8E+09	1.4E+08	5.5E+05	16.6	1.2	24.9
9Li	178.3 ms	2.8E+08	1.7E+07	6.6E+04	13.1	1.2	24.9
11Li	8.75 ms	1.1E+06	1.0E+04	2.5E+01	8.8	1.2	19.7
7Be	53.22 d	5.9E+09	4.5E+07	1.8E+05	21.6	1.4	24.9
10Be	1.51 My	2.3E+09	2.3E+07	9.3E+04	10.7	1.2	24.8
11Be	13.81 s	1.8E+08	2.0E+06	7.9E+03	8.8	1.2	24.9
12Be	21.5 ms	2.4E+07	6.7E+04	2.1E+02	7.4	1.2	24.9
14Be	4.35 ms	1.7E+05	1.3E+02	2.2E-01	5.4	1.2	21.6
13N	9.965 m	1.8E+09	2.9E+05	1.2E+03	14.2	1.2	24.8
16N	7.13 s	2.9E+09	7.6E+02	3.0E+00	9.4	1.2	24.8
17N	4.173 s	8.8E+08	1.1E+02	4.4E-01	8.3	1.2	22.9
13O	8.58 ms	1.9E+07	3.3E+02	5.5E-01	24.9	1.6	24.9
14O	70.598 s	2.4E+08	2.2E+06	8.8E+03	21.6	1.4	24.8
15O	122.24 s	1.5E+09	1.6E+07	6.5E+04	18.9	1.2	24.8
19O	26.464 s	1.6E+09	1.5E+07	6.0E+04	11.8	1.2	24.8
20O	13.51 s	4.3E+08	3.3E+06	1.3E+04	10.7	1.2	23.8
17F	64.49 s	1.2E+09	1.7E+07	6.8E+04	14.7	1.2	24.8
18F	109.771 m	4.4E+09	6.8E+07	2.7E+05	13.2	1.2	24.8
20F	11.163 s	6.9E+09	9.6E+07	3.8E+05	10.7	1.2	23.8
21F	4.158 s	5.0E+09	5.2E+07	2.1E+05	9.7	1.2	21.6
17Ne	109.2 ms	8.4E+06	1.0E+03	1.3E+01	22.9	1.2	24.8
18Ne	1.672 s	1.1E+08	7.9E+05	1.2E+04	20.5	1.2	24.8
19Ne	17.296 s	8.2E+08	1.3E+07	2.0E+05	18.4	1.2	24.8

24Mg on 12C (1200W, 95 AMeV)

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	1.0E+09	3.9E+06	6.2E+05	7.4	1.8	24.9
8He	119 ms	1.2E+07	4.4E+04	6.8E+03	4.2	1.2	16.5
8Li	840.3 ms	1.3E+09	1.0E+08	4.0E+05	16.6	1.2	24.9
9Li	178.3 ms	1.9E+08	1.2E+07	4.5E+04	13.1	1.2	24.9
11Li	8.75 ms	3.8E+05	3.6E+03	8.6E+00	8.8	1.2	19.7
7Be	53.22 d	4.7E+09	3.6E+07	1.4E+05	21.6	1.4	24.9
10Be	1.51 My	1.7E+09	1.7E+07	6.9E+04	10.7	1.2	24.8
11Be	13.81 s	8.6E+07	9.4E+05	3.8E+03	8.8	1.2	24.9
12Be	21.5 ms	9.0E+06	2.5E+04	7.9E+01	7.4	1.2	24.9
14Be	4.35 ms	3.3E+04	2.6E+01	4.3E-02	5.4	1.2	21.6
13N	9.965 m	1.7E+09	2.7E+05	1.1E+03	14.2	1.2	24.8
16N	7.13 s	1.2E+09	3.1E+02	1.3E+00	9.4	1.2	24.8
17N	4.173 s	2.4E+08	3.0E+01	1.2E-01	8.3	1.2	22.9
13O	8.58 ms	2.1E+07	3.7E+02	6.1E-01	24.9	1.6	24.9
14O	70.598 s	2.8E+08	2.6E+06	1.0E+04	21.6	1.4	24.8
15O	122.24 s	1.7E+09	1.8E+07	7.3E+04	18.9	1.2	24.8
19O	26.464 s	3.1E+08	2.9E+06	1.2E+04	11.8	1.2	24.8
20O	13.51 s	3.8E+07	3.0E+05	1.2E+03	10.7	1.2	23.8
17F	64.49 s	1.8E+09	2.6E+07	1.0E+05	14.7	1.2	24.8
18F	109.771 m	5.0E+09	7.7E+07	3.1E+05	13.2	1.2	24.8
20F	11.163 s	1.7E+09	2.4E+07	9.4E+04	10.7	1.2	23.8
21F	4.158 s	3.4E+08	3.6E+06	1.4E+04	9.7	1.2	21.6
17Ne	109.2 ms	2.0E+07	2.4E+03	3.2E+01	22.9	1.2	24.8
18Ne	1.672 s	2.9E+08	2.1E+06	3.1E+04	20.5	1.2	24.8
19Ne	17.296 s	2.0E+09	3.2E+07	4.8E+05	18.4	1.2	24.8
20Na	447.9 ms	3.4E+08	4.4E+06	4.5E+04	16.6	1.2	24.8
21Na	22.49 s	2.4E+09	2.7E+08	2.9E+06	15.1	1.2	24.8
22Na	2.6019 y	7.1E+09	8.4E+08	8.9E+06	13.8	1.2	24.8
20Mg	90 ms	1.3E+06	1.5E+03	1.4E+01	23.8	1.5	24.8
21Mg	122 ms	2.7E+07	4.5E+04	4.1E+02	21.6	1.4	24.8
22Mg	3.857 s	4.6E+08	1.0E+07	1.1E+05	19.7	1.2	24.8
23Mg	11.317 s	5.3E+09	1.7E+08	1.8E+06	18.1	1.2	24.8

26Mg on 12C (1200W, 75 AMeV)

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	9.1E+08	3.6E+06	5.7E+05	7.4	1.8	24.9
8He	119 ms	1.1E+07	4.0E+04	6.2E+03	4.2	1.2	16.5
8Li	840.3 ms	1.2E+09	9.3E+07	3.7E+05	16.6	1.2	24.9
9Li	178.3 ms	1.8E+08	1.1E+07	4.2E+04	13.1	1.2	24.9
11Li	8.75 ms	4.4E+05	4.2E+03	9.9E+00	8.8	1.2	19.7
7Be	53.22 d	4.1E+09	3.1E+07	1.3E+05	21.6	1.4	24.9
10Be	1.51 My	1.5E+09	1.5E+07	6.1E+04	10.7	1.2	24.8
11Be	13.81 s	8.4E+07	9.2E+05	3.7E+03	8.8	1.2	24.9
12Be	21.5 ms	9.8E+06	2.7E+04	8.6E+01	7.4	1.2	24.9
14Be	4.35 ms	5.0E+04	3.9E+01	6.6E-02	5.4	1.2	21.6
13N	9.965 m	1.2E+09	1.9E+05	7.7E+02	14.2	1.2	24.8
16N	7.13 s	1.2E+09	3.1E+02	1.3E+00	9.4	1.2	24.8
17N	4.173 s	3.0E+08	3.7E+01	1.5E-01	8.3	1.2	22.9
13O	8.58 ms	1.4E+07	2.4E+02	4.1E-01	24.9	1.6	24.9
14O	70.598 s	1.8E+08	1.6E+06	6.6E+03	21.6	1.4	24.8
15O	122.24 s	1.1E+09	1.2E+07	4.7E+04	18.9	1.2	24.8
19O	26.464 s	4.8E+08	4.5E+06	1.8E+04	11.8	1.2	24.8
20O	13.51 s	9.2E+07	7.2E+05	2.9E+03	10.7	1.2	23.8
21O	3.42 s	1.3E+07	6.2E+04	2.5E+02	9.7	1.2	21.6
22O	2.25 s	1.4E+06	6.0E+03	2.4E+01	8.8	1.2	19.7
17F	64.49 s	1.0E+09	1.4E+07	5.7E+04	14.7	1.2	24.8
18F	109.771 m	3.3E+09	5.1E+07	2.0E+05	13.2	1.2	24.8
20F	11.163 s	2.4E+09	3.3E+07	1.3E+05	10.7	1.2	23.8
21F	4.158 s	7.7E+08	8.1E+06	3.2E+04	9.7	1.2	21.6
22F	4.23 s	1.7E+08	2.0E+06	7.9E+03	8.8	1.2	19.7
23F	2.23 s	2.8E+07	2.3E+05	9.0E+02	8.1	1.2	18.1
17Ne	109.2 ms	9.3E+06	1.1E+03	1.5E+01	22.9	1.2	24.8
18Ne	1.672 s	1.3E+08	9.4E+05	1.4E+04	20.5	1.2	24.8
19Ne	17.296 s	9.2E+08	1.5E+07	2.2E+05	18.4	1.2	24.8
23Ne	37.24 s	1.3E+09	2.9E+07	4.4E+05	12.6	1.2	24.8
24Ne	3.38 m	3.6E+08	8.7E+06	1.3E+05	11.6	1.2	24.8
20Na	447.9 ms	9.9E+07	1.3E+06	1.3E+04	16.6	1.2	24.8
21Na	22.49 s	7.6E+08	8.5E+07	9.1E+05	15.1	1.2	24.8
22Na	2.6019 y	2.9E+09	3.4E+08	3.6E+06	13.8	1.2	24.8
24Na	14.959 h	2.8E+09	3.4E+08	3.6E+06	11.6	1.2	24.8
24Nam	20.2 ms	2.8E+09	6.3E+05	3.8E+03	11.6	1.2	24.8
25Na	59.1 s	3.9E+09	4.8E+08	5.0E+06	10.7	1.2	24.8
20Mg	90 ms	3.2E+05	3.8E+02	3.4E+00	23.8	1.5	24.8
21Mg	122 ms	4.6E+06	7.6E+03	7.0E+01	21.6	1.4	24.8
22Mg	3.857 s	6.6E+07	1.4E+06	1.5E+04	19.7	1.2	24.8
23Mg	11.317 s	5.3E+08	1.7E+07	1.8E+05	18.1	1.2	24.8

36S on 12C (1200W, 77.5 AMeV)

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	5.0E+08	2.0E+06	3.1E+05	7.4	1.8	24.9
8He	119 ms	6.4E+06	2.3E+04	3.6E+03	4.2	1.2	16.5
8Li	840.3 ms	6.5E+08	5.0E+07	2.0E+05	16.6	1.2	24.9
9Li	178.3 ms	9.7E+07	5.9E+06	2.3E+04	13.1	1.2	24.9
11Li	8.75 ms	2.2E+05	2.1E+03	5.0E+00	8.8	1.2	19.7
7Be	53.22 d	2.2E+09	1.7E+07	6.7E+04	21.6	1.4	24.9
10Be	1.51 My	8.0E+08	8.1E+06	3.3E+04	10.7	1.2	24.8
11Be	13.81 s	3.4E+07	3.7E+05	1.5E+03	8.8	1.2	24.9
12Be	21.5 ms	4.3E+06	1.2E+04	3.8E+01	7.4	1.2	24.9
14Be	4.35 ms	2.7E+04	2.1E+01	3.5E-02	5.4	1.2	21.6
13N	9.965 m	4.1E+08	6.6E+04	2.6E+02	14.2	1.2	24.8
16N	7.13 s	4.4E+08	1.1E+02	4.6E-01	9.4	1.2	24.8
17N	4.173 s	1.1E+08	1.4E+01	5.5E-02	8.3	1.2	22.9
13O	8.58 ms	5.5E+06	9.6E+01	1.6E-01	24.9	1.6	24.9
14O	70.598 s	6.7E+07	6.1E+05	2.4E+03	21.6	1.4	24.8
15O	122.24 s	3.9E+08	4.2E+06	1.7E+04	18.9	1.2	24.8
19O	26.464 s	1.8E+08	1.7E+06	6.8E+03	11.8	1.2	24.8
20O	13.51 s	3.6E+07	2.8E+05	1.1E+03	10.7	1.2	23.8
21O	3.42 s	5.4E+06	2.6E+04	1.0E+02	9.7	1.2	21.6
22O	2.25 s	6.2E+05	2.6E+03	1.1E+01	8.8	1.2	19.7
23O	90 ms	5.7E+04	3.3E+01	1.2E-01	8.1	1.2	18.1
17F	64.49 s	3.6E+08	5.1E+06	2.0E+04	14.7	1.2	24.8
18F	109.771 m	1.1E+09	1.7E+07	6.8E+04	13.2	1.2	24.8
20F	11.163 s	8.3E+08	1.2E+07	4.6E+04	10.7	1.2	23.8
21F	4.158 s	2.8E+08	2.9E+06	1.2E+04	9.7	1.2	21.6
22F	4.23 s	6.4E+07	7.4E+05	3.0E+03	8.8	1.2	19.7
23F	2.23 s	1.1E+07	8.9E+04	3.6E+02	8.1	1.2	18.1
24F	400 ms	1.4E+06	2.0E+03	7.9E+00	7.4	1.2	16.6
25F	50 ms	1.5E+05	1.8E+01	5.7E-02	6.8	1.2	15.3
17Ne	109.2 ms	3.5E+06	4.2E+02	5.5E+00	22.9	1.2	24.8
18Ne	1.672 s	4.7E+07	3.4E+05	5.0E+03	20.5	1.2	24.8
19Ne	17.296 s	3.1E+08	4.9E+06	7.4E+04	18.4	1.2	24.8
23Ne	37.24 s	4.3E+08	9.6E+06	1.4E+05	12.6	1.2	24.8
24Ne	3.38 m	1.1E+08	2.7E+06	4.0E+04	11.6	1.2	24.8
25Ne	602 ms	2.2E+07	7.6E+04	1.1E+03	10.7	1.2	24.8
26Ne	197 ms	3.4E+06	2.1E+03	2.9E+01	9.9	1.2	24.8
27Ne	32 ms	4.2E+05	1.3E+01	1.3E-01	9.2	1.2	23.3
20Na	447.9 ms	3.6E+07	4.6E+05	4.7E+03	16.6	1.2	24.8
21Na	22.49 s	2.6E+08	2.9E+07	3.1E+05	15.1	1.2	24.8
22Na	2.6019 y	9.7E+08	1.1E+08	1.2E+06	13.8	1.2	24.8
24Na	14.959 h	7.5E+08	9.1E+07	9.7E+05	11.6	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
24Nam	20.2 ms	7.5E+08	1.7E+05	1.0E+03	11.6	1.2	24.8
25Na	59.1 s	6.7E+08	8.2E+07	8.7E+05	10.7	1.2	24.8
26Na	1.077 s	2.0E+08	7.3E+06	7.6E+04	9.9	1.2	24.8
27Na	301 ms	4.6E+07	4.0E+05	4.0E+03	9.2	1.2	23.3
28Na	30.5 ms	8.2E+06	3.4E+03	2.4E+01	8.5	1.2	21.6
29Na	44.9 ms	1.2E+06	8.5E+02	6.8E+00	7.9	1.2	20.2
30Na	48.4 ms	1.5E+05	1.2E+02	9.6E-01	7.4	1.2	18.9
20Mg	90 ms	1.2E+05	1.4E+02	1.3E+00	23.8	1.5	24.8
21Mg	122 ms	1.8E+06	3.0E+03	2.8E+01	21.6	1.4	24.8
22Mg	3.857 s	2.6E+07	5.7E+05	6.0E+03	19.7	1.2	24.8
23Mg	11.317 s	2.1E+08	6.6E+06	7.0E+04	18.1	1.2	24.8
27Mg	9.458 m	1.0E+09	4.6E+07	4.9E+05	13.2	1.2	24.8
28Mg	20.915 h	3.6E+08	1.7E+07	1.8E+05	12.2	1.2	24.8
29Mg	1.3 s	9.6E+07	1.6E+06	1.6E+04	11.4	1.2	24.8
30Mg	335 ms	2.0E+07	1.2E+05	1.2E+03	10.7	1.2	23.8
31Mg	230 ms	3.6E+06	1.6E+04	1.6E+02	10.0	1.2	22.3
32Mg	95 ms	5.2E+05	1.1E+03	9.4E+00	9.4	1.2	21.0
23Al	470 ms	1.1E+06	3.0E+01	4.0E-01	18.1	1.2	24.8
24Al	2.053 s	8.5E+06	1.4E+03	1.9E+01	16.6	1.2	24.8
24Alm	131.3 ms	8.5E+06	5.8E+01	7.0E-01	16.6	1.2	24.8
25Al	7.183 s	1.5E+08	1.1E+05	1.5E+03	15.3	1.2	24.8
26Al	717 ky	3.6E+08	9.9E+06	1.4E+05	14.2	1.2	24.8
26Alm	6.3452 s	3.6E+08	2.4E+05	3.3E+03	14.2	1.2	24.8
28Al	2.2414 m	2.4E+09	3.5E+07	4.8E+05	12.2	1.2	24.8
29Al	6.56 m	1.5E+09	3.8E+07	5.2E+05	11.4	1.2	24.8
30Al	3.6 s	6.5E+08	2.9E+05	4.0E+03	10.7	1.2	23.9
31Al	644 ms	2.1E+08	1.4E+04	1.8E+02	10.0	1.2	22.4
32Al	31.7 ms	5.4E+07	1.1E+02	9.9E-01	9.4	1.2	21.0
33Al	41.7 ms	1.0E+07	3.0E+01	2.9E-01	8.8	1.2	19.8
28P	270.3 ms	5.3E+06	2.6E+01	4.1E-01	16.6	1.4	24.8
29P	4.142 s	6.1E+07	1.7E+03	2.8E+01	15.5	1.3	24.8
30P	2.498 m	3.7E+08	9.5E+04	1.6E+03	14.5	1.2	24.8
32P	14.263 d	2.6E+09	6.5E+07	1.1E+06	12.8	1.2	24.8
33P	25.34 d	3.4E+09	9.9E+07	1.7E+06	12.0	1.2	24.3
34P	12.43 s	3.2E+09	2.2E+05	3.7E+03	11.3	1.2	22.9
35P	47.3 s	2.1E+09	3.4E+05	5.7E+03	10.7	1.2	21.7

36Ar on 12C (1200W, 95 AMeV)

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	4.5E+08	1.8E+06	2.8E+05	7.4	1.8	24.9
8He	119 ms	5.4E+06	2.0E+04	3.1E+03	4.2	1.2	16.5
8Li	840.3 ms	5.8E+08	4.5E+07	1.8E+05	16.6	1.2	24.9
9Li	178.3 ms	8.4E+07	5.1E+06	2.0E+04	13.1	1.2	24.9
11Li	8.75 ms	9.7E+04	9.2E+02	2.2E+00	8.8	1.2	19.7
7Be	53.22 d	2.1E+09	1.6E+07	6.4E+04	21.6	1.4	24.9
10Be	1.51 My	7.2E+08	7.3E+06	2.9E+04	10.7	1.2	24.8
11Be	13.81 s	2.2E+07	2.4E+05	9.6E+02	8.8	1.2	24.9
12Be	21.5 ms	2.3E+06	6.4E+03	2.0E+01	7.4	1.2	24.9
14Be	4.35 ms	8.6E+03	6.7E+00	1.1E-02	5.4	1.2	21.6
13N	9.965 m	4.2E+08	6.8E+04	2.7E+02	14.2	1.2	24.8
16N	7.13 s	3.1E+08	8.1E+01	3.2E-01	9.4	1.2	24.8
17N	4.173 s	6.5E+07	8.1E+00	3.2E-02	8.3	1.2	22.9
13O	8.58 ms	5.2E+06	9.1E+01	1.5E-01	24.9	1.6	24.9
14O	70.598 s	6.9E+07	6.3E+05	2.5E+03	21.6	1.4	24.8
15O	122.24 s	4.2E+08	4.5E+06	1.8E+04	18.9	1.2	24.8
19O	26.464 s	9.3E+07	8.8E+05	3.5E+03	11.8	1.2	24.8
20O	13.51 s	1.4E+07	1.1E+05	4.4E+02	10.7	1.2	23.8
21O	3.42 s	1.4E+06	6.7E+03	2.7E+01	9.7	1.2	21.6
22O	2.25 s	1.1E+05	4.7E+02	1.9E+00	8.8	1.2	19.7
23O	90 ms	6.3E+03	3.6E+00	1.3E-02	8.1	1.2	18.1
17F	64.49 s	4.2E+08	6.0E+06	2.4E+04	14.7	1.2	24.8
18F	109.771 m	1.2E+09	1.8E+07	7.4E+04	13.2	1.2	24.8
20F	11.163 s	5.3E+08	7.4E+06	2.9E+04	10.7	1.2	23.8
21F	4.158 s	1.3E+08	1.4E+06	5.4E+03	9.7	1.2	21.6
22F	4.23 s	2.1E+07	2.4E+05	9.7E+02	8.8	1.2	19.7
23F	2.23 s	2.4E+06	1.9E+04	7.7E+01	8.1	1.2	18.1
24F	400 ms	2.0E+05	2.9E+02	1.1E+00	7.4	1.2	16.6
17Ne	109.2 ms	4.3E+06	5.2E+02	6.8E+00	22.9	1.2	24.8
18Ne	1.672 s	6.1E+07	4.4E+05	6.5E+03	20.5	1.2	24.8
19Ne	17.296 s	4.1E+08	6.5E+06	9.8E+04	18.4	1.2	24.8
23Ne	37.24 s	1.8E+08	4.0E+06	6.0E+04	12.6	1.2	24.8
24Ne	3.38 m	3.2E+07	7.8E+05	1.2E+04	11.6	1.2	24.8
25Ne	602 ms	3.8E+06	1.3E+04	1.9E+02	10.7	1.2	24.8
26Ne	197 ms	3.3E+05	2.0E+02	2.9E+00	9.9	1.2	24.8
20Na	447.9 ms	5.6E+07	7.2E+05	7.4E+03	16.6	1.2	24.8
21Na	22.49 s	4.0E+08	4.5E+07	4.8E+05	15.1	1.2	24.8
22Na	2.6019 y	1.3E+09	1.5E+08	1.6E+06	13.8	1.2	24.8
24Na	14.959 h	4.3E+08	5.2E+07	5.5E+05	11.6	1.2	24.8
24Nam	20.2 ms	4.3E+08	9.7E+04	5.9E+02	11.6	1.2	24.8
25Na	59.1 s	2.5E+08	3.0E+07	3.2E+05	10.7	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
26Na	1.077 s	4.5E+07	1.6E+06	1.7E+04	9.9	1.2	24.8
27Na	301 ms	5.6E+06	4.8E+04	4.9E+02	9.2	1.2	23.3
28Na	30.5 ms	4.8E+05	2.0E+02	1.4E+00	8.5	1.2	21.6
29Na	44.9 ms	3.0E+04	2.1E+01	1.7E-01	7.9	1.2	20.2
20Mg	90 ms	2.0E+05	2.4E+02	2.1E+00	23.8	1.5	24.8
21Mg	122 ms	3.3E+06	5.5E+03	5.1E+01	21.6	1.4	24.8
22Mg	3.857 s	5.2E+07	1.1E+06	1.2E+04	19.7	1.2	24.8
23Mg	11.317 s	3.9E+08	1.2E+07	1.3E+05	18.1	1.2	24.8
27Mg	9.458 m	3.1E+08	1.4E+07	1.5E+05	13.2	1.2	24.8
28Mg	20.915 h	5.9E+07	2.8E+06	3.0E+04	12.2	1.2	24.8
29Mg	1.3 s	7.2E+06	1.2E+05	1.2E+03	11.4	1.2	24.8
30Mg	335 ms	6.1E+05	3.6E+03	3.6E+01	10.7	1.2	23.8
23Al	470 ms	2.9E+06	8.0E+01	1.1E+00	18.1	1.2	24.8
24Al	2.053 s	2.4E+07	3.9E+03	5.4E+01	16.6	1.2	24.8
24Alm	131.3 ms	2.4E+07	1.6E+02	2.0E+00	16.6	1.2	24.8
25Al	7.183 s	3.8E+08	2.8E+05	3.8E+03	15.3	1.2	24.8
26Al	717 ky	7.0E+08	2.0E+07	2.7E+05	14.2	1.2	24.8
26Alm	6.3452 s	7.0E+08	4.8E+05	6.6E+03	14.2	1.2	24.8
28Al	2.2414 m	1.2E+09	1.8E+07	2.4E+05	12.2	1.2	24.8
29Al	6.56 m	3.7E+08	9.3E+06	1.3E+05	11.4	1.2	24.8
30Al	3.6 s	6.8E+07	3.1E+04	4.2E+02	10.7	1.2	23.9
31Al	644 ms	8.1E+06	5.3E+02	7.1E+00	10.0	1.2	22.4
27P	260 ms	2.7E+06	1.2E+01	1.9E-01	17.9	1.5	24.8
28P	270.3 ms	5.0E+07	2.5E+02	3.9E+00	16.6	1.4	24.8
29P	4.142 s	4.4E+08	1.2E+04	2.0E+02	15.5	1.3	24.8
30P	2.498 m	1.7E+09	4.4E+05	7.4E+03	14.5	1.2	24.8
32P	14.263 d	1.4E+09	3.5E+07	5.9E+05	12.8	1.2	24.8
33P	25.34 d	3.7E+08	1.1E+07	1.8E+05	12.0	1.2	24.3
31Cl	150 ms	4.1E+06	2.7E+03	4.4E+01	17.7	1.2	24.8
32Cl	298 ms	8.1E+07	1.3E+05	2.3E+03	16.6	1.2	24.8
33Cl	2.511 s	7.5E+08	1.2E+07	2.2E+05	15.6	1.2	24.8
34Cl	1.5264 s	1.9E+09	2.1E+07	3.8E+05	14.7	1.2	24.8
34Clm	32 m	1.9E+09	8.0E+07	1.5E+06	14.7	1.2	24.8
31Ar	14.4 ms	8.7E+03		2.4E-01	17.7	1.2	24.8
32Ar	98 ms	2.2E+05	2.3E+03	6.9E+01	16.6	1.2	24.8
33Ar	173 ms	5.6E+06	8.8E+04	2.9E+03	15.6	1.2	24.8
34Ar	845 ms	1.4E+08	4.4E+06	1.6E+05	14.7	1.2	24.8
35Ar	1.775 s	2.2E+09	8.3E+07	3.1E+06	13.9	1.2	24.8

40Ca on 12C (800W, 95 AMeV)

Warning: The delivery of Ca beams from the fragmentation of a primary beam of Ca will require tests as no Ca was seen so far from the SPIRAL targets using the FEBIAD ion source.

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	2.5E+08	9.8E+05	1.6E+05	7.4	1.8	24.9
8He	119 ms	2.9E+06	1.1E+04	1.6E+03	4.2	1.2	16.5
8Li	840.3 ms	3.2E+08	2.5E+07	9.8E+04	16.6	1.2	24.9
9Li	178.3 ms	4.6E+07	2.8E+06	1.1E+04	13.1	1.2	24.9
11Li	8.75 ms	4.4E+04	4.2E+02	9.9E-01	8.8	1.2	19.7
7Be	53.22 d	1.1E+09	8.4E+06	3.4E+04	21.6	1.4	24.9
10Be	1.51 My	3.9E+08	4.0E+06	1.6E+04	10.7	1.2	24.8
11Be	13.81 s	1.0E+07	1.1E+05	4.4E+02	8.8	1.2	24.9
12Be	21.5 ms	1.1E+06	3.1E+03	9.6E+00	7.4	1.2	24.9
13N	9.965 m	1.9E+08	3.1E+04	1.2E+02	14.2	1.2	24.8
16N	7.13 s	1.4E+08	3.7E+01	1.5E-01	9.4	1.2	24.8
17N	4.173 s	2.9E+07	3.6E+00	1.4E-02	8.3	1.2	22.9
13O	8.58 ms	2.4E+06	4.2E+01	7.0E-02	24.9	1.6	24.9
14O	70.598 s	3.1E+07	2.8E+05	1.1E+03	21.6	1.4	24.8
15O	122.24 s	1.9E+08	2.1E+06	8.2E+03	18.9	1.2	24.8
19O	26.464 s	4.2E+07	4.0E+05	1.6E+03	11.8	1.2	24.8
20O	13.51 s	6.3E+06	4.9E+04	2.0E+02	10.7	1.2	23.8
21O	3.42 s	6.7E+05	3.2E+03	1.3E+01	9.7	1.2	21.6
22O	2.25 s	5.1E+04	2.2E+02	8.6E-01	8.8	1.2	19.7
17F	64.49 s	1.9E+08	2.7E+06	1.1E+04	14.7	1.2	24.8
18F	109.771 m	5.3E+08	8.2E+06	3.3E+04	13.2	1.2	24.8
20F	11.163 s	2.4E+08	3.3E+06	1.3E+04	10.7	1.2	23.8
21F	4.158 s	6.0E+07	6.3E+05	2.5E+03	9.7	1.2	21.6
22F	4.23 s	9.8E+06	1.1E+05	4.5E+02	8.8	1.2	19.7
23F	2.23 s	1.1E+06	8.9E+03	3.6E+01	8.1	1.2	18.1
24F	400 ms	9.5E+04	1.4E+02	5.4E-01	7.4	1.2	16.6
17Ne	109.2 ms	1.9E+06	2.3E+02	3.0E+00	22.9	1.2	24.8
18Ne	1.672 s	2.7E+07	1.9E+05	2.9E+03	20.5	1.2	24.8
19Ne	17.296 s	1.8E+08	2.9E+06	4.3E+04	18.4	1.2	24.8
23Ne	37.24 s	8.4E+07	1.9E+06	2.8E+04	12.6	1.2	24.8
24Ne	3.38 m	1.5E+07	3.6E+05	5.5E+03	11.6	1.2	24.8
25Ne	602 ms	1.9E+06	6.6E+03	9.7E+01	10.7	1.2	24.8
26Ne	197 ms	1.7E+05	1.1E+02	1.5E+00	9.9	1.2	24.8
20Na	447.9 ms	2.5E+07	3.2E+05	3.3E+03	16.6	1.2	24.8
21Na	22.49 s	1.8E+08	2.0E+07	2.1E+05	15.1	1.2	24.8
22Na	2.6019 y	5.7E+08	6.7E+07	7.2E+05	13.8	1.2	24.8
24Na	14.959 h	2.0E+08	2.4E+07	2.6E+05	11.6	1.2	24.8
24Nam	20.2 ms	2.0E+08	4.5E+04	2.7E+02	11.6	1.2	24.8
25Na	59.1 s	1.2E+08	1.5E+07	1.6E+05	10.7	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
26Na	1.077 s	2.2E+07	8.0E+05	8.4E+03	9.9	1.2	24.8
27Na	301 ms	3.0E+06	2.6E+04	2.6E+02	9.2	1.2	23.3
28Na	30.5 ms	2.9E+05	1.2E+02	8.5E-01	8.5	1.2	21.6
29Na	44.9 ms	2.0E+04	1.4E+01	1.1E-01	7.9	1.2	20.2
20Mg	90 ms	8.8E+04	1.0E+02	9.2E-01	23.8	1.5	24.8
21Mg	122 ms	1.4E+06	2.3E+03	2.1E+01	21.6	1.4	24.8
22Mg	3.857 s	2.2E+07	4.8E+05	5.1E+03	19.7	1.2	24.8
23Mg	11.317 s	1.7E+08	5.3E+06	5.6E+04	18.1	1.2	24.8
27Mg	9.458 m	1.6E+08	7.4E+06	7.8E+04	13.2	1.2	24.8
28Mg	20.915 h	3.2E+07	1.5E+06	1.6E+04	12.2	1.2	24.8
29Mg	1.3 s	4.4E+06	7.1E+04	7.5E+02	11.4	1.2	24.8
30Mg	335 ms	4.4E+05	2.6E+03	2.6E+01	10.7	1.2	23.8
31Mg	230 ms	3.2E+04	1.4E+02	1.4E+00	10.0	1.2	22.3
32Mg	95 ms	1.7E+03	3.4E+00	3.1E-02	9.4	1.2	21.0
23Al	470 ms	1.2E+06	3.3E+01	4.4E-01	18.1	1.2	24.8
24Al	2.053 s	1.0E+07	1.6E+03	2.2E+01	16.6	1.2	24.8
24Alm	131.3 ms	1.0E+07	6.8E+01	8.2E-01	16.6	1.2	24.8
25Al	7.183 s	1.6E+08	1.2E+05	1.6E+03	15.3	1.2	24.8
26Al	717 ky	3.0E+08	8.4E+06	1.2E+05	14.2	1.2	24.8
26Alm	6.3452 s	3.0E+08	2.1E+05	2.8E+03	14.2	1.2	24.8
28Al	2.2414 m	6.1E+08	8.9E+06	1.2E+05	12.2	1.2	24.8
29Al	6.56 m	2.0E+08	5.0E+06	6.9E+04	11.4	1.2	24.8
30Al	3.6 s	4.3E+07	1.9E+04	2.7E+02	10.7	1.2	23.9
31Al	644 ms	6.1E+06	4.0E+02	5.3E+00	10.0	1.2	22.4
27P	260 ms	9.4E+05	4.3E+00	6.7E-02	17.9	1.5	24.8
28P	270.3 ms	1.7E+07	8.4E+01	1.3E+00	16.6	1.4	24.8
29P	4.142 s	1.5E+08	4.1E+03	7.0E+01	15.5	1.3	24.8
30P	2.498 m	6.4E+08	1.6E+05	2.8E+03	14.5	1.2	24.8
32P	14.263 d	8.2E+08	2.0E+07	3.5E+05	12.8	1.2	24.8
33P	25.34 d	2.8E+08	8.2E+06	1.4E+05	12.0	1.2	24.3
34P	12.43 s	5.8E+07	4.0E+03	6.7E+01	11.3	1.2	22.9
35P	47.3 s	7.5E+06	1.2E+03	2.0E+01	10.7	1.2	21.7
31Cl	150 ms	9.1E+05	6.0E+02	9.7E+00	17.7	1.2	24.8
32Cl	298 ms	1.9E+07	3.1E+04	5.3E+02	16.6	1.2	24.8
33Cl	2.511 s	1.9E+08	3.0E+06	5.6E+04	15.6	1.2	24.8
34Cl	1.5264 s	4.1E+08	4.5E+06	8.2E+04	14.7	1.2	24.8
34Clm	32 m	4.1E+08	1.7E+07	3.2E+05	14.7	1.2	24.8
36Cl	301 ky	9.1E+08	4.2E+07	7.8E+05	13.2	1.2	24.8
31Ar	14.4 ms	1.9E+03	3.8E+00	5.3E-02	17.7	1.2	24.8
32Ar	98 ms	4.5E+04	4.7E+02	1.4E+01	16.6	1.2	24.8
33Ar	173 ms	1.1E+06	1.7E+04	5.7E+02	15.6	1.2	24.8
34Ar	845 ms	2.5E+07	7.9E+05	2.9E+04	14.7	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
35Ar	1.775 s	2.4E+08	9.1E+06	3.4E+05	13.9	1.2	24.8
37Ar	35.04 d	1.9E+09	9.1E+07	3.4E+06	12.5	1.2	24.8
35K	178 ms	1.6E+06	1.1E+05	2.3E+03	13.9	1.2	24.8
36K	342 ms	3.4E+07	3.6E+06	7.9E+04	13.2	1.2	24.8
37K	1.226 s	3.6E+08	6.4E+07	1.5E+06	12.5	1.2	24.8
38K	7.636 m	1.1E+09	2.7E+08	6.3E+06	11.8	1.2	24.8
38Kxm	923.9 ms	1.1E+09	1.7E+08	3.9E+06	11.8	1.2	24.8
37Ca	181.1 ms	2.2E+06	1.2E+01	2.4E-01	15.7	1.2	24.8
38Ca	440 ms	6.2E+07	1.8E+03	3.9E+01	14.9	1.2	24.8
39Ca	859.6 ms	1.1E+09	1.1E+05	2.4E+03	14.2	1.2	24.8

48Ca on 12C (700W, 60.3 AMeV)

Warning: The delivery of Ca beams from the fragmentation of a primary beam of Ca will require tests as no Ca was seen so far from the SPIRAL targets using the FEBIAD ion source.

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	1.6E+08	6.3E+05	1.0E+05	7.4	1.8	24.9
8He	119 ms	2.3E+06	8.4E+03	1.3E+03	4.2	1.2	16.5
8Li	840.3 ms	2.1E+08	1.6E+07	6.4E+04	16.6	1.2	24.9
9Li	178.3 ms	3.2E+07	1.9E+06	7.5E+03	13.1	1.2	24.9
11Li	8.75 ms	1.1E+05	1.0E+03	2.5E+00	8.8	1.2	19.7
7Be	53.22 d	7.1E+08	5.4E+06	2.2E+04	21.6	1.4	24.9
10Be	1.51 My	2.6E+08	2.6E+06	1.1E+04	10.7	1.2	24.8
11Be	13.81 s	9.1E+06	1.0E+05	4.0E+02	8.8	1.2	24.9
12Be	21.5 ms	1.5E+06	4.2E+03	1.3E+01	7.4	1.2	24.9
14Be	4.35 ms	1.7E+04	1.3E+01	2.2E-02	5.4	1.2	21.6
13N	9.965 m	7.8E+07	1.3E+04	5.0E+01	14.2	1.2	24.8
16N	7.13 s	9.2E+07	2.4E+01	9.6E-02	9.4	1.2	24.8
17N	4.173 s	2.9E+07	3.6E+00	1.4E-02	8.3	1.2	22.9
13O	8.58 ms	1.5E+06	2.6E+01	4.3E-02	24.9	1.6	24.9
14O	70.598 s	1.5E+07	1.4E+05	5.5E+02	21.6	1.4	24.8
15O	122.24 s	7.3E+07	7.9E+05	3.2E+03	18.9	1.2	24.8
19O	26.464 s	4.3E+07	4.1E+05	1.6E+03	11.8	1.2	24.8
20O	13.51 s	1.1E+07	8.6E+04	3.4E+02	10.7	1.2	23.8
21O	3.42 s	2.0E+06	9.5E+03	3.8E+01	9.7	1.2	21.6
22O	2.25 s	3.1E+05	1.3E+03	5.3E+00	8.8	1.2	19.7
23O	90 ms	3.8E+04	2.2E+01	7.7E-02	8.1	1.2	18.1
17F	64.49 s	6.7E+07	9.5E+05	3.8E+03	14.7	1.2	24.8
18F	109.771 m	1.9E+08	2.9E+06	1.2E+04	13.2	1.2	24.8
20F	11.163 s	1.6E+08	2.2E+06	8.9E+03	10.7	1.2	23.8
21F	4.158 s	6.4E+07	6.7E+05	2.7E+03	9.7	1.2	21.6
22F	4.23 s	1.8E+07	2.1E+05	8.3E+02	8.8	1.2	19.7
23F	2.23 s	3.9E+06	3.2E+04	1.3E+02	8.1	1.2	18.1
24F	400 ms	6.6E+05	9.6E+02	3.7E+00	7.4	1.2	16.6
25F	50 ms	9.3E+04	1.1E+01	3.5E-02	6.8	1.2	15.3
17Ne	109.2 ms	9.5E+05	1.1E+02	1.5E+00	22.9	1.2	24.8
18Ne	1.672 s	1.0E+07	7.2E+04	1.1E+03	20.5	1.2	24.8
19Ne	17.296 s	5.8E+07	9.2E+05	1.4E+04	18.4	1.2	24.8
23Ne	37.24 s	9.6E+07	2.1E+06	3.2E+04	12.6	1.2	24.8
24Ne	3.38 m	3.0E+07	7.3E+05	1.1E+04	11.6	1.2	24.8
25Ne	602 ms	7.4E+06	2.6E+04	3.8E+02	10.7	1.2	24.8
26Ne	197 ms	1.4E+06	8.7E+02	1.2E+01	9.9	1.2	24.8
27Ne	32 ms	2.3E+05	6.9E+00	7.1E-02	9.2	1.2	23.3
20Na	447.9 ms	8.0E+06	1.0E+05	1.1E+03	16.6	1.2	24.8
21Na	22.49 s	4.8E+07	5.4E+06	5.7E+04	15.1	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
22Na	2.6019 y	1.6E+08	1.9E+07	2.0E+05	13.8	1.2	24.8
24Na	14.959 h	1.4E+08	1.7E+07	1.8E+05	11.6	1.2	24.8
24Nam	20.2 ms	1.4E+08	3.2E+04	1.9E+02	11.6	1.2	24.8
25Na	59.1 s	1.4E+08	1.7E+07	1.8E+05	10.7	1.2	24.8
26Na	1.077 s	5.1E+07	1.9E+06	1.9E+04	9.9	1.2	24.8
27Na	301 ms	1.4E+07	1.2E+05	1.2E+03	9.2	1.2	23.3
28Na	30.5 ms	3.2E+06	1.3E+03	9.4E+00	8.5	1.2	21.6
29Na	44.9 ms	5.8E+05	4.1E+02	3.3E+00	7.9	1.2	20.2
30Na	48.4 ms	9.2E+04	7.3E+01	5.9E-01	7.4	1.2	18.9
20Mg	90 ms	3.2E+04	3.8E+01	3.4E-01	23.8	1.5	24.8
21Mg	122 ms	4.6E+05	7.6E+02	7.0E+00	21.6	1.4	24.8
22Mg	3.857 s	5.8E+06	1.3E+05	1.3E+03	19.7	1.2	24.8
23Mg	11.317 s	3.8E+07	1.2E+06	1.3E+04	18.1	1.2	24.8
27Mg	9.458 m	2.1E+08	9.7E+06	1.0E+05	13.2	1.2	24.8
28Mg	20.915 h	8.6E+07	4.1E+06	4.4E+04	12.2	1.2	24.8
29Mg	1.3 s	2.7E+07	4.4E+05	4.6E+03	11.4	1.2	24.8
30Mg	335 ms	7.0E+06	4.1E+04	4.2E+02	10.7	1.2	23.8
31Mg	230 ms	1.5E+06	6.6E+03	6.5E+01	10.0	1.2	22.3
32Mg	95 ms	2.7E+05	5.5E+02	4.9E+00	9.4	1.2	21.0
33Mg	90.5 ms	4.3E+04	8.6E+01	7.6E-01	8.8	1.2	19.7
23Al	470 ms	2.9E+05	8.0E+00	1.1E-01	18.1	1.2	24.8
24Al	2.053 s	2.0E+06	3.2E+02	4.4E+00	16.6	1.2	24.8
24Alm	131.3 ms	2.0E+06	1.3E+01	1.6E-01	16.6	1.2	24.8
25Al	7.183 s	2.8E+07	2.1E+04	2.8E+02	15.3	1.2	24.8
26Al	717 ky	6.0E+07	1.7E+06	2.3E+04	14.2	1.2	24.8
26Alm	6.3452 s	6.0E+07	4.1E+04	5.6E+02	14.2	1.2	24.8
28Al	2.2414 m	4.1E+08	6.0E+06	8.3E+04	12.2	1.2	24.8
29Al	6.56 m	2.9E+08	7.3E+06	1.0E+05	11.4	1.2	24.8
30Al	3.6 s	1.4E+08	6.3E+04	8.7E+02	10.7	1.2	23.9
31Al	644 ms	5.2E+07	3.4E+03	4.5E+01	10.0	1.2	22.4
32Al	31.7 ms	1.5E+07	3.1E+01	2.7E-01	9.4	1.2	21.0
33Al	41.7 ms	3.7E+06	1.1E+01	1.1E-01	8.8	1.2	19.8
34Al	56.3 ms	7.9E+05	3.5E+00	3.7E-02	8.3	1.2	18.6
28P	270.3 ms	1.3E+06	6.4E+00	1.0E-01	16.6	1.4	24.8
29P	4.142 s	1.2E+07	3.3E+02	5.6E+00	15.5	1.3	24.8
30P	2.498 m	6.2E+07	1.6E+04	2.7E+02	14.5	1.2	24.8
32P	14.263 d	4.2E+08	1.0E+07	1.8E+05	12.8	1.2	24.8
33P	25.34 d	5.0E+08	1.5E+07	2.5E+05	12.0	1.2	24.3
34P	12.43 s	3.5E+08	2.4E+04	4.0E+02	11.3	1.2	22.9
35P	47.3 s	1.7E+08	2.7E+04	4.6E+02	10.7	1.2	21.7
36P	5.6 s	7.0E+07	3.2E+03	5.4E+01	10.1	1.2	20.5
37P	2.31 s	2.3E+07	6.3E+02	1.1E+01	9.6	1.2	19.4

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
38P	640 ms	6.7E+06	8.8E+01	1.4E+00	9.1	1.2	18.4
39P	190 ms	1.7E+06	1.1E+01	1.7E-01	8.6	1.2	17.5
40P	153 ms	4.0E+05	2.3E+00	3.5E-02	8.2	1.2	16.6
31Cl	150 ms	1.9E+04	1.3E+01	2.0E-01	17.7	1.2	24.8
32Cl	298 ms	2.6E+05	4.2E+02	7.3E+00	16.6	1.2	24.8
33Cl	2.511 s	3.1E+06	5.0E+04	9.2E+02	15.6	1.2	24.8
34Cl	1.5264 s	1.1E+07	1.2E+05	2.2E+03	14.7	1.2	24.8
34Clm	32 m	1.1E+07	4.7E+05	8.7E+03	14.7	1.2	24.8
36Cl	301 ky	2.8E+08	1.3E+07	2.4E+05	13.2	1.2	24.8
38Cl	37.24 m	3.3E+08	1.6E+07	3.0E+05	11.8	1.2	24.8
38Clm	715 ms	3.3E+08	1.9E+06	3.4E+04	11.8	1.2	24.8
39Cl	55.6 m	4.8E+08	2.5E+07	4.6E+05	11.2	1.2	24.8
40Cl	1.35 m	2.8E+08	1.5E+07	2.7E+05	10.7	1.2	23.9
41Cl	38.4 s	1.4E+08	7.1E+06	1.3E+05	10.2	1.2	22.7
42Cl	6.8 s	5.8E+07	2.2E+06	4.0E+04	9.7	1.2	21.7
43Cl	3.07 s	2.2E+07	5.5E+05	1.0E+04	9.2	1.2	20.7
44Cl	560 ms	7.2E+06	3.5E+04	6.2E+02	8.8	1.2	19.8
45Cl	400 ms	1.9E+06	6.2E+03	1.1E+02	8.4	1.2	18.9
32Ar	98 ms	5.3E+02	5.5E+00	1.7E-01	16.6	1.2	24.8
33Ar	173 ms	7.2E+03	1.1E+02	3.8E+00	15.6	1.2	24.8
34Ar	845 ms	9.8E+04	3.1E+03	1.1E+02	14.7	1.2	24.8
35Ar	1.775 s	1.3E+06	4.9E+04	1.8E+03	13.9	1.2	24.8
37Ar	35.04 d	5.4E+07	2.6E+06	9.7E+04	12.5	1.2	24.8
39Ar	269 y	4.4E+08	2.3E+07	8.5E+05	11.2	1.2	24.8
41Ar	109.61 m	7.1E+08	3.8E+07	1.4E+06	10.2	1.2	22.7
42Ar	32.9 y	5.3E+08	2.9E+07	1.1E+06	9.7	1.2	21.7
43Ar	5.37 m	3.2E+08	1.7E+07	6.5E+05	9.2	1.2	20.7
44Ar	11.87 m	1.8E+08	9.8E+06	3.7E+05	8.8	1.2	19.8
45Ar	21.48 s	9.0E+07	4.9E+06	1.8E+05	8.4	1.2	18.9
46Ar	8.4 s	3.5E+07	1.9E+06	7.0E+04	8.1	1.2	18.1
35K	178 ms	2.5E+03	1.8E+02	3.6E+00	13.9	1.2	24.8
36K	342 ms	3.2E+04	3.4E+03	7.4E+01	13.2	1.2	24.8
37K	1.226 s	4.2E+05	7.5E+04	1.7E+03	12.5	1.2	24.8
38K	7.636 m	2.1E+06	5.3E+05	1.2E+04	11.8	1.2	24.8
38Kxm	923.9 ms	2.1E+06	3.4E+05	7.7E+03	11.8	1.2	24.8
40K	1.251 Gy	1.0E+08	2.6E+07	6.1E+05	10.7	1.2	23.9
42K	12.36 h	5.6E+08	1.5E+08	3.4E+06	9.7	1.2	21.7
43K	22.3 h	8.0E+08	2.1E+08	4.9E+06	9.2	1.2	20.7
44K	22.13 m	9.2E+08	2.4E+08	5.6E+06	8.8	1.2	19.8
45K	17.3 m	9.2E+08	2.4E+08	5.6E+06	8.4	1.2	18.9
46K	105 s	8.0E+08	2.1E+08	4.9E+06	8.1	1.2	18.1
47K	17.5 s	5.3E+08	1.3E+08	3.1E+06	7.7	1.2	17.3

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
39Ca	859.6 ms	1.1E+05	1.1E+01	2.4E-01	14.2	1.2	24.8
41Ca	102 ky	8.3E+06	7.4E+05	1.7E+04	12.8	1.2	24.8
45Ca	162.67 d	7.1E+08	6.4E+07	1.5E+06	10.7	1.2	22.1
47Ca	4.536 d	2.8E+09	2.5E+08	5.9E+06	9.8	1.2	20.3

Candidate beams immediately after startup

58Ni on 12C (700W, 74.5 AMeV)

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	9.9E+07	3.9E+05	6.2E+04	7.4	1.8	24.9
8He	119 ms	1.2E+06	4.4E+03	6.8E+02	4.2	1.2	16.5
8Li	840.3 ms	1.3E+08	1.0E+07	4.0E+04	16.6	1.2	24.9
9Li	178.3 ms	1.8E+07	1.1E+06	4.2E+03	13.1	1.2	24.9
11Li	8.75 ms	8.7E+03	8.3E+01	2.0E-01	8.8	1.2	19.7
7Be	53.22 d	4.5E+08	3.4E+06	1.4E+04	21.6	1.4	24.9
10Be	1.51 My	1.6E+08	1.6E+06	6.5E+03	10.7	1.2	24.8
11Be	13.81 s	2.0E+06	2.2E+04	8.8E+01	8.8	1.2	24.9
12Be	21.5 ms	2.0E+05	5.6E+02	1.7E+00	7.4	1.2	24.9
13N	9.965 m	3.6E+07	5.8E+03	2.3E+01	14.2	1.2	24.8
16N	7.13 s	2.7E+07	7.1E+00	2.8E-02	9.4	1.2	24.8
13O	8.58 ms	4.5E+05	7.8E+00	1.3E-02	24.9	1.6	24.9
14O	70.598 s	5.9E+06	5.4E+04	2.2E+02	21.6	1.4	24.8
15O	122.24 s	3.6E+07	3.9E+05	1.6E+03	18.9	1.2	24.8
19O	26.464 s	7.9E+06	7.5E+04	3.0E+02	11.8	1.2	24.8
20O	13.51 s	1.2E+06	9.3E+03	3.7E+01	10.7	1.2	23.8
21O	3.42 s	1.3E+05	6.2E+02	2.5E+00	9.7	1.2	21.6
22O	2.25 s	9.9E+03	4.2E+01	1.7E-01	8.8	1.2	19.7
17F	64.49 s	3.5E+07	5.0E+05	2.0E+03	14.7	1.2	24.8
18F	109.771 m	9.8E+07	1.5E+06	6.0E+03	13.2	1.2	24.8
20F	11.163 s	4.5E+07	6.3E+05	2.5E+03	10.7	1.2	23.8
21F	4.158 s	1.1E+07	1.2E+05	4.6E+02	9.7	1.2	21.6
22F	4.23 s	1.9E+06	2.2E+04	8.8E+01	8.8	1.2	19.7
23F	2.23 s	2.2E+05	1.8E+03	7.1E+00	8.1	1.2	18.1
24F	400 ms	1.9E+04	2.8E+01	1.1E-01	7.4	1.2	16.6
17Ne	109.2 ms	3.5E+05	4.2E+01	5.5E-01	22.9	1.2	24.8
18Ne	1.672 s	5.0E+06	3.6E+04	5.4E+02	20.5	1.2	24.8
19Ne	17.296 s	3.3E+07	5.3E+05	7.9E+03	18.4	1.2	24.8
23Ne	37.24 s	1.6E+07	3.6E+05	5.4E+03	12.6	1.2	24.8
24Ne	3.38 m	2.9E+06	7.0E+04	1.1E+03	11.6	1.2	24.8
25Ne	602 ms	3.7E+05	1.3E+03	1.9E+01	10.7	1.2	24.8
26Ne	197 ms	3.5E+04	2.2E+01	3.0E-01	9.9	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
20Na	447.9 ms	4.4E+06	5.7E+04	5.8E+02	16.6	1.2	24.8
21Na	22.49 s	3.1E+07	3.5E+06	3.7E+04	15.1	1.2	24.8
22Na	2.6019 y	1.0E+08	1.2E+07	1.3E+05	13.8	1.2	24.8
24Na	14.959 h	3.7E+07	4.5E+06	4.8E+04	11.6	1.2	24.8
24Nam	20.2 ms	3.7E+07	8.3E+03	5.1E+01	11.6	1.2	24.8
25Na	59.1 s	2.2E+07	2.7E+06	2.8E+04	10.7	1.2	24.8
26Na	1.077 s	4.4E+06	1.6E+05	1.7E+03	9.9	1.2	24.8
27Na	301 ms	6.3E+05	5.4E+03	5.5E+01	9.2	1.2	23.3
28Na	30.5 ms	6.6E+04	2.7E+01	1.9E-01	8.5	1.2	21.6
20Mg	90 ms	1.6E+04	1.9E+01	1.7E-01	23.8	1.5	24.8
21Mg	122 ms	2.5E+05	4.1E+02	3.8E+00	21.6	1.4	24.8
22Mg	3.857 s	3.8E+06	8.3E+04	8.8E+02	19.7	1.2	24.8
23Mg	11.317 s	2.9E+07	9.1E+05	9.6E+03	18.1	1.2	24.8
27Mg	9.458 m	3.1E+07	1.4E+06	1.5E+04	13.2	1.2	24.8
28Mg	20.915 h	6.8E+06	3.3E+05	3.5E+03	12.2	1.2	24.8
29Mg	1.3 s	1.1E+06	1.8E+04	1.9E+02	11.4	1.2	24.8
30Mg	335 ms	1.2E+05	7.1E+02	7.1E+00	10.7	1.2	23.8
31Mg	230 ms	1.1E+04	4.8E+01	4.8E-01	10.0	1.2	22.3
23Al	470 ms	2.0E+05	5.5E+00	7.3E-02	18.1	1.2	24.8
24Al	2.053 s	1.7E+06	2.7E+02	3.7E+00	16.6	1.2	24.8
24Alm	131.3 ms	1.7E+06	1.1E+01	1.4E-01	16.6	1.2	24.8
25Al	7.183 s	2.6E+07	1.9E+04	2.6E+02	15.3	1.2	24.8
26Al	717 ky	4.9E+07	1.4E+06	1.9E+04	14.2	1.2	24.8
26Alm	6.3452 s	4.9E+07	3.3E+04	4.6E+02	14.2	1.2	24.8
28Al	2.2414 m	1.2E+08	1.8E+06	2.4E+04	12.2	1.2	24.8
29Al	6.56 m	4.2E+07	1.1E+06	1.4E+04	11.4	1.2	24.8
30Al	3.6 s	1.0E+07	4.5E+03	6.2E+01	10.7	1.2	23.9
31Al	644 ms	1.7E+06	1.1E+02	1.5E+00	10.0	1.2	22.4
28P	270.3 ms	2.2E+06	1.1E+01	1.7E-01	16.6	1.4	24.8
29P	4.142 s	2.0E+07	5.5E+02	9.3E+00	15.5	1.3	24.8
30P	2.498 m	9.0E+07	2.3E+04	3.9E+02	14.5	1.2	24.8
32P	14.263 d	1.7E+08	4.2E+06	7.2E+04	12.8	1.2	24.8
33P	25.34 d	7.7E+07	2.2E+06	3.8E+04	12.0	1.2	24.3
34P	12.43 s	2.2E+07	1.5E+03	2.5E+01	11.3	1.2	22.9
35P	47.3 s	4.5E+06	7.2E+02	1.2E+01	10.7	1.2	21.7
36P	5.6 s	6.7E+05	3.0E+01	5.2E-01	10.1	1.2	20.5
31Cl	150 ms	7.4E+04	4.9E+01	7.9E-01	17.7	1.2	24.8
32Cl	298 ms	1.4E+06	2.3E+03	3.9E+01	16.6	1.2	24.8
33Cl	2.511 s	1.5E+07	2.4E+05	4.4E+03	15.6	1.2	24.8
34Cl	1.5264 s	3.9E+07	4.3E+05	7.8E+03	14.7	1.2	24.8
34Clm	32 m	3.9E+07	1.6E+06	3.1E+04	14.7	1.2	24.8
36Cl	301 ky	2.4E+08	1.1E+07	2.0E+05	13.2	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
38Cl	37.24 m	2.2E+07	1.1E+06	2.0E+04	11.8	1.2	24.8
38Clm	715 ms	2.2E+07	1.3E+05	2.3E+03	11.8	1.2	24.8
39Cl	55.6 m	1.0E+07	5.1E+05	9.5E+03	11.2	1.2	24.8
40Cl	1.35 m	1.8E+06	9.4E+04	1.7E+03	10.7	1.2	23.9
41Cl	38.4 s	2.4E+05	1.2E+04	2.3E+02	10.2	1.2	22.7
42Cl	6.8 s	2.6E+04	9.8E+02	1.8E+01	9.7	1.2	21.7
43Cl	3.07 s	2.1E+03	5.2E+01	9.6E-01	9.2	1.2	20.7
32Ar	98 ms	2.9E+03	3.0E+01	9.1E-01	16.6	1.2	24.8
33Ar	173 ms	5.6E+04	8.8E+02	2.9E+01	15.6	1.2	24.8
34Ar	845 ms	1.1E+06	3.5E+04	1.3E+03	14.7	1.2	24.8
35Ar	1.775 s	1.2E+07	4.5E+05	1.7E+04	13.9	1.2	24.8
37Ar	35.04 d	2.0E+08	9.5E+06	3.6E+05	12.5	1.2	24.8
39Ar	269 y	1.6E+08	8.2E+06	3.1E+05	11.2	1.2	24.8
41Ar	109.61 m	1.5E+07	8.0E+05	3.0E+04	10.2	1.2	22.7
42Ar	32.9 y	2.8E+06	1.5E+05	5.7E+03	9.7	1.2	21.7
43Ar	5.37 m	4.0E+05	2.2E+04	8.2E+02	9.2	1.2	20.7
44Ar	11.87 m	4.4E+04	2.4E+03	9.1E+01	8.8	1.2	19.8
45Ar	21.48 s	3.8E+03	2.1E+02	7.8E+00	8.4	1.2	18.9
46Ar	8.4 s	2.6E+02	1.4E+01	5.2E-01	8.1	1.2	18.1
35K	178 ms	4.2E+04	3.0E+03	6.1E+01	13.9	1.2	24.8
36K	342 ms	8.5E+05	9.0E+04	2.0E+03	13.2	1.2	24.8
37K	1.226 s	1.0E+07	1.8E+06	4.1E+04	12.5	1.2	24.8
38K	7.636 m	3.2E+07	8.2E+06	1.9E+05	11.8	1.2	24.8
38Kxm	923.9 ms	3.2E+07	5.3E+06	1.2E+05	11.8	1.2	24.8
40K	1.251 Gy	3.1E+08	8.1E+07	1.9E+06	10.7	1.2	23.9
42K	12.36 h	8.0E+07	2.1E+07	4.9E+05	9.7	1.2	21.7
43K	22.3 h	2.1E+07	5.5E+06	1.3E+05	9.2	1.2	20.7
44K	22.13 m	4.2E+06	1.1E+06	2.6E+04	8.8	1.2	19.8
45K	17.3 m	6.1E+05	1.6E+05	3.7E+03	8.4	1.2	18.9
46K	105 s	6.9E+04	1.8E+04	4.2E+02	8.1	1.2	18.1
47K	17.5 s	6.1E+03	1.5E+03	3.6E+01	7.7	1.2	17.3
48K	6.8 s	4.4E+02	1.1E+02	2.5E+00	7.4	1.2	16.6
38Ca	440 ms	6.5E+05	1.8E+01	4.0E-01	14.9	1.2	24.8
39Ca	859.6 ms	8.8E+06	8.6E+02	2.0E+01	14.2	1.2	24.8
41Ca	102 ky	2.0E+08	1.8E+07	4.2E+05	12.8	1.2	24.8
45Ca	162.67 d	2.9E+07	2.6E+06	6.1E+04	10.7	1.2	22.1
47Ca	4.536 d	8.6E+05	7.8E+04	1.8E+03	9.8	1.2	20.3
48Ca	53 Ey	1.0E+05	9.1E+03	2.1E+02	9.4	1.2	19.5
49Ca	8.718 m	9.5E+03	8.6E+02	2.0E+01	9.0	1.2	18.7
50Ca	13.9 s	7.1E+02	1.0E+01	2.4E-01	8.7	1.2	18.0
40Sc	182.3 ms	5.2E+05	8.9E+01	1.8E+00	13.5	1.2	24.8
41Sc	596.3 ms	7.5E+06	4.2E+03	9.4E+01	12.8	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
42Sc	681.3 ms	2.7E+07	1.7E+04	3.9E+02	12.2	1.2	24.8
42Scm	61.7 s	2.7E+07	7.6E+05	1.8E+04	12.2	1.2	24.8
43Sc	3.891 h	2.0E+08	1.1E+07	2.5E+05	11.7	1.2	24.2
44Sc	3.97 h	1.8E+08	9.8E+06	2.3E+05	11.2	1.2	23.2
44Scm	58.61 h	1.8E+08	9.8E+06	2.3E+05	11.2	1.2	23.2
45Scm	318 ms	1.4E+08	4.3E+04	9.3E+02	10.7	1.2	22.1
46Sc	83.79 d	6.0E+07	3.3E+06	7.7E+04	10.2	1.2	21.2
46Scm	18.75 s	6.0E+07	8.3E+05	1.9E+04	10.2	1.2	21.2
47Sc	3.3492 d	3.6E+07	2.0E+06	4.7E+04	9.8	1.2	20.3
48Sc	43.67 h	7.5E+06	4.2E+05	9.8E+03	9.4	1.2	19.5
49Sc	57.2 m	1.2E+06	6.6E+04	1.6E+03	9.0	1.2	18.7
50Sc	102.5 s	7.0E+04	2.6E+03	6.0E+01	8.7	1.2	18.0
50Scm	350 ms	7.0E+04	2.4E+01	5.3E-01	8.7	1.2	18.0
51Sc	12.4 s	1.3E+04	1.3E+02	3.1E+00	8.3	1.2	17.3
48Cr	21.56 h	5.3E+07	2.9E+06	6.9E+04	11.6	1.2	24.8
49Cr	42.3 m	2.2E+08	5.1E+06	1.2E+05	11.1	1.2	24.8
51Cr	27.7025 d	4.2E+08	2.4E+07	5.6E+05	10.3	1.2	22.9
47Mn	100 ms	1.3E+04	2.2E+01	3.5E-01	14.6	1.2	24.8
48Mn	158.1 ms	3.5E+05	1.2E+03	2.0E+01	14.0	1.2	24.8
49Mn	382 ms	6.3E+06	6.8E+04	1.3E+03	13.4	1.2	24.8
50Mn	283.9 ms	2.7E+07	2.0E+05	3.8E+03	12.9	1.2	24.8
50Mnm	1.75 m	2.7E+07	1.5E+06	3.2E+04	12.9	1.2	24.8
51Mn	46.2 m	2.3E+08	1.3E+07	2.8E+05	12.4	1.2	24.8
52Mn	5.591 d	2.5E+08	1.4E+07	3.0E+05	11.9	1.2	24.8
52Mnm	21.1 m	2.5E+08	1.4E+07	3.0E+05	11.9	1.2	24.8
53Mn	3.7 My	4.9E+08	2.8E+07	6.0E+05	11.5	1.2	24.2
54Mn	312.03 d	2.5E+08	1.4E+07	3.1E+05	11.1	1.2	23.3
52Fe	8.275 h	2.7E+07	1.5E+06	3.1E+04	11.9	1.2	24.8
52Fem	45.9 s	2.7E+07	2.6E+03	5.4E+01	11.9	1.2	24.8
53Fe	8.51 m	1.3E+08	4.3E+05	9.0E+03	11.5	1.2	24.2
53Fem	2.526 m	1.3E+08	7.4E+04	1.5E+03	11.5	1.2	24.2
55Fe	2.737 y	8.1E+08	4.7E+07	9.8E+05	10.7	1.2	22.5
54Com	1.48 m	2.8E+07	7.4E+03	1.5E+02	11.1	1.2	23.3
55Co	17.53 h	3.6E+08	2.1E+07	4.3E+05	10.7	1.2	22.5
56Co	77.23 d	1.3E+09	7.6E+07	1.6E+06	10.3	1.2	21.7
57Co	271.74 d	1.4E+09	8.3E+07	1.7E+06	9.9	1.2	20.9
56Ni	6.075 d	6.0E+07	3.5E+06	7.3E+04	12.3	1.2	24.4
57Ni	35.6 h	6.3E+08	3.7E+07	7.7E+05	11.8	1.2	23.6

78Kr on 12C (1200W, 70.4 AMeV)

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	1.1E+08	4.3E+05	6.9E+04	7.4	1.8	24.9
8He	119 ms	1.3E+06	4.7E+03	7.4E+02	4.2	1.2	16.5
8Li	840.3 ms	1.4E+08	1.1E+07	4.3E+04	16.6	1.2	24.9
9Li	178.3 ms	2.0E+07	1.2E+06	4.7E+03	13.1	1.2	24.9
11Li	8.75 ms	5.1E+03	4.9E+01	1.2E-01	8.8	1.2	19.7
7Be	53.22 d	5.0E+08	3.8E+06	1.5E+04	21.6	1.4	24.9
10Be	1.51 My	1.7E+08	1.7E+06	6.9E+03	10.7	1.2	24.8
11Be	13.81 s	1.2E+06	1.3E+04	5.3E+01	8.8	1.2	24.9
12Be	21.5 ms	1.2E+05	3.4E+02	1.0E+00	7.4	1.2	24.9
13N	9.965 m	2.1E+07	3.4E+03	1.4E+01	14.2	1.2	24.8
16N	7.13 s	1.5E+07	3.9E+00	1.6E-02	9.4	1.2	24.8
13O	8.58 ms	2.6E+05	4.5E+00	7.5E-03	24.9	1.6	24.9
14O	70.598 s	3.4E+06	3.1E+04	1.2E+02	21.6	1.4	24.8
15O	122.24 s	2.0E+07	2.2E+05	8.6E+02	18.9	1.2	24.8
19O	26.464 s	4.4E+06	4.2E+04	1.7E+02	11.8	1.2	24.8
20O	13.51 s	6.6E+05	5.1E+03	2.1E+01	10.7	1.2	23.8
21O	3.42 s	7.0E+04	3.3E+02	1.3E+00	9.7	1.2	21.6
22O	2.25 s	5.4E+03	2.3E+01	9.2E-02	8.8	1.2	19.7
17F	64.49 s	1.9E+07	2.7E+05	1.1E+03	14.7	1.2	24.8
18F	109.771 m	5.5E+07	8.5E+05	3.4E+03	13.2	1.2	24.8
20F	11.163 s	2.5E+07	3.5E+05	1.4E+03	10.7	1.2	23.8
21F	4.158 s	6.2E+06	6.5E+04	2.6E+02	9.7	1.2	21.6
22F	4.23 s	1.0E+06	1.2E+04	4.6E+01	8.8	1.2	19.7
23F	2.23 s	1.2E+05	9.7E+02	3.9E+00	8.1	1.2	18.1
24F	400 ms	1.0E+04	1.5E+01	5.6E-02	7.4	1.2	16.6
17Ne	109.2 ms	2.0E+05	2.4E+01	3.2E-01	22.9	1.2	24.8
18Ne	1.672 s	2.8E+06	2.0E+04	3.0E+02	20.5	1.2	24.8
19Ne	17.296 s	1.8E+07	2.9E+05	4.3E+03	18.4	1.2	24.8
23Ne	37.24 s	8.6E+06	1.9E+05	2.9E+03	12.6	1.2	24.8
24Ne	3.38 m	1.6E+06	3.9E+04	5.8E+02	11.6	1.2	24.8
25Ne	602 ms	2.0E+05	7.0E+02	1.0E+01	10.7	1.2	24.8
26Ne	197 ms	1.9E+04	1.2E+01	1.6E-01	9.9	1.2	24.8
20Na	447.9 ms	2.4E+06	3.1E+04	3.2E+02	16.6	1.2	24.8
21Na	22.49 s	1.7E+07	1.9E+06	2.0E+04	15.1	1.2	24.8
22Na	2.6019 y	5.5E+07	6.5E+06	6.9E+04	13.8	1.2	24.8
24Na	14.959 h	2.0E+07	2.4E+06	2.6E+04	11.6	1.2	24.8
24Nam	20.2 ms	2.0E+07	4.5E+03	2.7E+01	11.6	1.2	24.8
25Na	59.1 s	1.2E+07	1.5E+06	1.6E+04	10.7	1.2	24.8
26Na	1.077 s	2.4E+06	8.8E+04	9.2E+02	9.9	1.2	24.8
27Na	301 ms	3.4E+05	2.9E+03	3.0E+01	9.2	1.2	23.3
28Na	30.5 ms	3.6E+04	1.5E+01	1.1E-01	8.5	1.2	21.6

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
20Mg	90 ms	8.5E+03	1.0E+01	8.9E-02	23.8	1.5	24.8
21Mg	122 ms	1.4E+05	2.3E+02	2.1E+00	21.6	1.4	24.8
22Mg	3.857 s	2.1E+06	4.6E+04	4.8E+02	19.7	1.2	24.8
23Mg	11.317 s	1.5E+07	4.7E+05	5.0E+03	18.1	1.2	24.8
27Mg	9.458 m	1.6E+07	7.4E+05	7.8E+03	13.2	1.2	24.8
28Mg	20.915 h	3.6E+06	1.7E+05	1.8E+03	12.2	1.2	24.8
29Mg	1.3 s	5.6E+05	9.1E+03	9.5E+01	11.4	1.2	24.8
30Mg	335 ms	6.5E+04	3.8E+02	3.9E+00	10.7	1.2	23.8
31Mg	230 ms	5.9E+03	2.6E+01	2.6E-01	10.0	1.2	22.3
23Al	470 ms	1.1E+05	3.0E+00	4.0E-02	18.1	1.2	24.8
24Al	2.053 s	8.5E+05	1.4E+02	1.9E+00	16.6	1.2	24.8
24Alm	131.3 ms	8.5E+05	5.8E+00	7.0E-02	16.6	1.2	24.8
25Al	7.183 s	1.4E+07	1.0E+04	1.4E+02	15.3	1.2	24.8
26Al	717 ky	2.6E+07	7.3E+05	1.0E+04	14.2	1.2	24.8
26Alm	6.3452 s	2.6E+07	1.8E+04	2.4E+02	14.2	1.2	24.8
28Al	2.2414 m	6.1E+07	8.9E+05	1.2E+04	12.2	1.2	24.8
29Al	6.56 m	2.2E+07	5.5E+05	7.6E+03	11.4	1.2	24.8
30Al	3.6 s	5.4E+06	2.4E+03	3.3E+01	10.7	1.2	23.9
31Al	644 ms	9.3E+05	6.1E+01	8.1E-01	10.0	1.2	22.4
28P	270.3 ms	1.1E+06	5.4E+00	8.5E-02	16.6	1.4	24.8
29P	4.142 s	1.0E+07	2.7E+02	4.6E+00	15.5	1.3	24.8
30P	2.498 m	4.5E+07	1.2E+04	2.0E+02	14.5	1.2	24.8
32P	14.263 d	9.0E+07	2.2E+06	3.8E+04	12.8	1.2	24.8
33P	25.34 d	4.0E+07	1.2E+06	2.0E+04	12.0	1.2	24.3
34P	12.43 s	1.2E+07	8.2E+02	1.4E+01	11.3	1.2	22.9
35P	47.3 s	2.4E+06	3.8E+02	6.5E+00	10.7	1.2	21.7
36P	5.6 s	3.8E+05	1.7E+01	2.9E-01	10.1	1.2	20.5
31Cl	150 ms	3.5E+04	2.3E+01	3.7E-01	17.7	1.2	24.8
32Cl	298 ms	6.6E+05	1.1E+03	1.8E+01	16.6	1.2	24.8
33Cl	2.511 s	6.9E+06	1.1E+05	2.0E+03	15.6	1.2	24.8
34Cl	1.5264 s	1.9E+07	2.0E+05	3.7E+03	14.7	1.2	24.8
34Clm	32 m	1.9E+07	7.8E+05	1.5E+04	14.7	1.2	24.8
36Cl	301 ky	1.2E+08	5.5E+06	1.0E+05	13.2	1.2	24.8
38Cl	37.24 m	1.2E+07	5.9E+05	1.1E+04	11.8	1.2	24.8
38Clm	715 ms	1.2E+07	7.0E+04	1.3E+03	11.8	1.2	24.8
39Cl	55.6 m	6.0E+06	3.1E+05	5.7E+03	11.2	1.2	24.8
40Cl	1.35 m	1.1E+06	5.7E+04	1.1E+03	10.7	1.2	23.9
41Cl	38.4 s	1.6E+05	8.2E+03	1.5E+02	10.2	1.2	22.7
42Cl	6.8 s	1.9E+04	7.1E+02	1.3E+01	9.7	1.2	21.7
43Cl	3.07 s	1.8E+03	4.5E+01	8.2E-01	9.2	1.2	20.7
32Ar	98 ms	1.4E+03	1.4E+01	4.4E-01	16.6	1.2	24.8
33Ar	173 ms	2.5E+04	3.9E+02	1.3E+01	15.6	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
34Ar	845 ms	4.9E+05	1.5E+04	5.7E+02	14.7	1.2	24.8
35Ar	1.775 s	5.6E+06	2.1E+05	7.9E+03	13.9	1.2	24.8
37Ar	35.04 d	9.4E+07	4.5E+06	1.7E+05	12.5	1.2	24.8
39Ar	269 y	8.6E+07	4.4E+06	1.7E+05	11.2	1.2	24.8
41Ar	109.61 m	9.2E+06	4.9E+05	1.9E+04	10.2	1.2	22.7
42Ar	32.9 y	1.9E+06	1.0E+05	3.9E+03	9.7	1.2	21.7
43Ar	5.37 m	3.0E+05	1.6E+04	6.1E+02	9.2	1.2	20.7
44Ar	11.87 m	3.7E+04	2.0E+03	7.6E+01	8.8	1.2	19.8
45Ar	21.48 s	3.9E+03	2.1E+02	8.0E+00	8.4	1.2	18.9
46Ar	8.4 s	3.3E+02	1.8E+01	6.6E-01	8.1	1.2	18.1
35K	178 ms	1.8E+04	1.3E+03	2.6E+01	13.9	1.2	24.8
36K	342 ms	3.5E+05	3.7E+04	8.1E+02	13.2	1.2	24.8
37K	1.226 s	4.4E+06	7.9E+05	1.8E+04	12.5	1.2	24.8
38K	7.636 m	1.4E+07	3.6E+06	8.4E+04	11.8	1.2	24.8
38Kxm	923.9 ms	1.4E+07	2.3E+06	5.2E+04	11.8	1.2	24.8
40K	1.251 Gy	1.5E+08	3.9E+07	9.1E+05	10.7	1.2	23.9
42K	12.36 h	4.6E+07	1.2E+07	2.8E+05	9.7	1.2	21.7
43K	22.3 h	1.4E+07	3.7E+06	8.6E+04	9.2	1.2	20.7
44K	22.13 m	3.1E+06	8.1E+05	1.9E+04	8.8	1.2	19.8
45K	17.3 m	5.3E+05	1.4E+05	3.2E+03	8.4	1.2	18.9
46K	105 s	7.3E+04	1.9E+04	4.5E+02	8.1	1.2	18.1
47K	17.5 s	8.3E+03	2.1E+03	4.9E+01	7.7	1.2	17.3
48K	6.8 s	7.8E+02	1.9E+02	4.4E+00	7.4	1.2	16.6
49K	1.26 s	6.2E+01	1.1E+01	2.6E-01	7.1	1.2	16.0
38Ca	440 ms	2.5E+05	7.1E+00	1.6E-01	14.9	1.2	24.8
39Ca	859.6 ms	3.4E+06	3.3E+02	7.6E+00	14.2	1.2	24.8
41Ca	102 ky	8.3E+07	7.4E+06	1.7E+05	12.8	1.2	24.8
45Ca	162.67 d	2.0E+07	1.8E+06	4.2E+04	10.7	1.2	22.1
47Ca	4.536 d	9.3E+05	8.4E+04	2.0E+03	9.8	1.2	20.3
48Ca	53 Ey	1.4E+05	1.3E+04	3.0E+02	9.4	1.2	19.5
49Ca	8.718 m	1.7E+04	1.5E+03	3.6E+01	9.0	1.2	18.7
50Ca	13.9 s	1.8E+03	2.6E+01	6.0E-01	8.7	1.2	18.0
40Sc	182.3 ms	1.7E+05	2.9E+01	5.9E-01	13.5	1.2	24.8
41Sc	596.3 ms	2.5E+06	1.4E+03	3.1E+01	12.8	1.2	24.8
42Sc	681.3 ms	9.5E+06	6.1E+03	1.4E+02	12.2	1.2	24.8
42Scm	61.7 s	9.5E+06	2.7E+05	6.3E+03	12.2	1.2	24.8
43Sc	3.891 h	7.6E+07	4.1E+06	9.6E+04	11.7	1.2	24.2
44Sc	3.97 h	8.0E+07	4.3E+06	1.0E+05	11.2	1.2	23.2
44Scm	58.61 h	8.0E+07	4.4E+06	1.0E+05	11.2	1.2	23.2
45Scm	318 ms	8.0E+07	2.5E+04	5.3E+02	10.7	1.2	22.1
46Sc	83.79 d	4.1E+07	2.3E+06	5.3E+04	10.2	1.2	21.2
46Scm	18.75 s	4.1E+07	5.7E+05	1.3E+04	10.2	1.2	21.2

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
47Sc	3.3492 d	2.9E+07	1.6E+06	3.8E+04	9.8	1.2	20.3
48Sc	43.67 h	7.8E+06	4.4E+05	1.0E+04	9.4	1.2	19.5
49Sc	57.2 m	1.6E+06	8.9E+04	2.1E+03	9.0	1.2	18.7
50Sc	102.5 s	1.3E+05	4.7E+03	1.1E+02	8.7	1.2	18.0
50Scm	350 ms	1.3E+05	4.5E+01	9.9E-01	8.7	1.2	18.0
51Sc	12.4 s	3.5E+04	3.6E+02	8.4E+00	8.3	1.2	17.3
52Sc	8.2 s	3.9E+03	2.8E+01	6.6E-01	8.0	1.2	16.6
48Cr	21.56 h	9.7E+06	5.4E+05	1.3E+04	11.6	1.2	24.8
49Cr	42.3 m	5.2E+07	1.2E+06	2.8E+04	11.1	1.2	24.8
51Cr	27.7025 d	2.2E+08	1.3E+07	2.9E+05	10.3	1.2	22.9
55Cr	3.497 m	6.7E+06	6.5E+03	1.5E+02	8.8	1.2	19.8
56Cr	5.94 m	1.4E+06	3.0E+03	6.9E+01	8.5	1.2	19.1
57Cr	21.1 s	2.3E+05	7.3E+00	1.7E-01	8.2	1.2	18.4
47Mn	100 ms	1.6E+03	2.7E+00	4.3E-02	14.6	1.2	24.8
48Mn	158.1 ms	3.4E+04	1.1E+02	2.0E+00	14.0	1.2	24.8
49Mn	382 ms	6.8E+05	7.3E+03	1.4E+02	13.4	1.2	24.8
50Mn	283.9 ms	3.8E+06	2.8E+04	5.3E+02	12.9	1.2	24.8
50Mnm	1.75 m	3.8E+06	2.1E+05	4.5E+03	12.9	1.2	24.8
51Mn	46.2 m	4.4E+07	2.5E+06	5.3E+04	12.4	1.2	24.8
52Mn	5.591 d	7.0E+07	4.0E+06	8.5E+04	11.9	1.2	24.8
52Mnm	21.1 m	7.0E+07	4.0E+06	8.5E+04	11.9	1.2	24.8
53Mn	3.7 My	2.3E+08	1.3E+07	2.8E+05	11.5	1.2	24.2
54Mn	312.03 d	2.0E+08	1.2E+07	2.5E+05	11.1	1.2	23.3
56Mn	2.5789 h	3.7E+07	2.2E+06	4.6E+04	10.3	1.2	21.7
57Mn	85.4 s	1.0E+07	5.9E+05	1.2E+04	9.9	1.2	20.9
58Mn	3 s	1.1E+06	5.5E+04	1.1E+03	9.6	1.2	20.2
58Mnm	65.2 s	1.1E+06	6.5E+04	1.4E+03	9.6	1.2	20.2
59Mn	4.59 s	4.0E+05	2.2E+04	4.6E+02	9.3	1.2	19.5
60Mn	51 s	2.9E+04	1.7E+03	3.7E+01	9.0	1.2	18.9
60Mnm	1.77 s	2.9E+04	1.2E+03	2.5E+01	9.0	1.2	18.9
61Mn	670 ms	7.1E+03	1.5E+02	3.1E+00	8.7	1.2	18.3
62Mn	671 ms	3.7E+02	8.0E+00	1.6E-01	8.4	1.2	17.7
52Fe	8.275 h	2.9E+06	1.6E+05	3.3E+03	11.9	1.2	24.8
52Fem	45.9 s	2.9E+06	2.8E+02	5.8E+00	11.9	1.2	24.8
53Fe	8.51 m	1.9E+07	6.4E+04	1.3E+03	11.5	1.2	24.2
53Fem	2.526 m	1.9E+07	1.1E+04	2.3E+02	11.5	1.2	24.2
55Fe	2.737 y	2.4E+08	1.4E+07	2.9E+05	10.7	1.2	22.5
59Fe	44.495 d	1.5E+07	9.0E+05	1.9E+04	9.3	1.2	19.5
60Fe	1.5 My	3.5E+06	2.1E+05	4.4E+03	9.0	1.2	18.9
61Fe	5.98 m	6.5E+05	1.4E+03	3.0E+01	8.7	1.2	18.3
62Fe	68 s	1.0E+05	1.9E+01	3.9E-01	8.4	1.2	17.7
54Com	1.48 m	2.2E+06	5.8E+02	1.2E+01	11.1	1.2	23.3

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
55Co	17.53 h	3.1E+07	1.8E+06	3.7E+04	10.7	1.2	22.5
56Co	77.23 d	1.2E+08	7.0E+06	1.5E+05	10.3	1.2	21.7
57Co	271.74 d	2.4E+08	1.4E+07	3.0E+05	9.9	1.2	20.9
58Co	70.86 d	1.4E+08	8.0E+06	1.7E+05	9.6	1.2	20.2
58Com	9.04 h	1.4E+08	7.8E+06	1.6E+05	9.6	1.2	20.2
60Co	5.2713 y	3.4E+07	2.0E+06	4.3E+04	9.0	1.2	18.9
60Com	10.467 m	3.4E+07	1.6E+05	3.4E+03	9.0	1.2	18.9
61Co	1.65 h	2.1E+07	9.1E+05	1.9E+04	8.7	1.2	18.3
62Co	1.5 m	2.6E+06	7.4E+02	1.5E+01	8.4	1.2	17.7
62Com	13.91 m	2.6E+06	1.9E+04	3.9E+02	8.4	1.2	17.7
63Co	26.9 s	1.0E+06	4.7E+01	9.8E-01	8.2	1.2	17.2
56Ni	6.075 d	3.3E+06	1.9E+05	4.0E+03	12.3	1.2	24.4
57Ni	35.6 h	2.5E+07	1.5E+06	3.1E+04	11.8	1.2	23.6
59Ni	101 ky	2.4E+08	1.4E+07	3.0E+05	11.0	1.2	22.0
63Ni	100.1 y	2.9E+07	1.8E+06	3.7E+04	9.7	1.2	19.4
65Ni	2.5172 h	1.7E+06	8.7E+04	1.8E+03	9.1	1.2	18.2
66Ni	54.6 h	3.1E+05	1.9E+04	4.0E+02	8.8	1.2	17.7
56Cu	93 ms	6.4E+03	5.3E+01	7.5E-01	12.2	1.2	24.4
57Cu	196.3 ms	1.6E+05	2.4E+03	4.0E+01	11.8	1.2	23.6
58Cu	3.204 s	2.5E+06	1.2E+05	2.4E+03	11.4	1.2	22.8
59Cu	81.5 s	2.1E+07	1.2E+06	2.5E+04	11.0	1.2	22.0
60Cu	23.7 m	9.7E+07	5.8E+06	1.1E+05	10.7	1.2	21.3
61Cu	3.333 h	2.4E+08	1.4E+07	2.9E+05	10.3	1.2	20.6
62Cu	9.673 m	3.3E+08	2.0E+07	4.0E+05	10.0	1.2	20.0
64Cu	12.7 h	1.1E+08	6.8E+06	1.3E+05	9.4	1.2	18.8
66Cu	5.12 m	1.2E+07	7.4E+05	1.5E+04	8.8	1.2	17.7
67Cu	61.83 h	2.8E+06	1.7E+05	3.5E+03	8.6	1.2	17.1
68Cu	31.1 s	2.8E+05	1.7E+04	3.3E+02	8.3	1.2	16.6
68Cum	3.75 m	2.8E+05	1.7E+04	3.4E+02	8.3	1.2	16.6
69Cu	2.85 m	8.7E+04	5.5E+03	1.1E+02	8.1	1.2	16.2
70Cu	44.5 s	3.3E+03	2.1E+02	4.1E+00	7.9	1.2	15.7
70Cum	33 s	3.3E+03	2.1E+02	4.1E+00	7.9	1.2	15.7
70Cun	6.6 s	3.3E+03	1.9E+02	3.7E+00	7.9	1.2	15.7
71Cu	19.4 s	8.0E+02	4.9E+01	9.7E-01	7.6	1.2	15.3
58Zn	84 ms	4.3E+03	1.0E+01	1.4E-01	11.4	1.2	22.8
59Zn	182 ms	1.1E+05	5.0E+02	8.1E+00	11.0	1.2	22.0
60Zn	2.38 m	1.9E+06	1.1E+05	2.1E+03	10.7	1.2	21.3
61Zn	89.1 s	9.0E+06	4.9E+05	9.6E+03	10.3	1.2	20.6
61Znn	140 ms	9.0E+06	3.4E+04	5.2E+02	10.3	1.2	20.6
62Zn	9.186 h	8.9E+07	5.4E+06	1.0E+05	10.0	1.2	20.0
63Zn	38.47 m	2.4E+08	1.5E+07	2.8E+05	9.7	1.2	19.4
65Zn	244.06 d	2.8E+08	1.7E+07	3.4E+05	9.1	1.2	18.2

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
69Zn	56.4 m	2.3E+06	1.4E+05	2.7E+03	8.1	1.2	16.2
69Znm	13.76 h	2.3E+06	1.4E+05	2.8E+03	8.1	1.2	16.2
71Zn	2.45 m	6.0E+04	3.6E+03	7.0E+01	7.6	1.2	15.3
71Znm	3.96 h	6.0E+04	3.8E+03	7.4E+01	7.6	1.2	15.3
72Zn	46.5 h	1.0E+04	6.4E+02	1.2E+01	7.4	1.2	14.9
60Ga	70 ms	3.0E+03	2.3E+00	2.8E-02	12.5	1.2	23.9
61Ga	168 ms	8.1E+04	1.5E+02	2.4E+00	12.1	1.2	23.1
62Ga	115.99 ms	1.5E+06	2.0E+03	2.8E+01	11.7	1.2	22.4
63Ga	32.4 s	1.6E+07	5.6E+05	1.1E+04	11.4	1.2	21.7
64Ga	2.627 m	8.2E+07	4.2E+06	8.1E+04	11.0	1.2	21.0
65Ga	15.2 m	2.3E+08	1.4E+07	2.6E+05	10.7	1.2	20.4
66Ga	9.49 h	3.7E+08	2.3E+07	4.4E+05	10.4	1.2	19.8
67Ga	3.2612 d	3.4E+08	2.1E+07	4.0E+05	10.1	1.2	19.2
68Ga	67.71 m	1.9E+08	1.2E+07	2.3E+05	9.8	1.2	18.6
70Ga	21.14 m	2.7E+07	1.7E+06	3.2E+04	9.2	1.2	17.6
72Ga	14.1 h	5.5E+05	3.5E+04	6.7E+02	8.7	1.2	16.6
72Gam	39.68 ms	5.5E+05	2.3E+02	2.2E+00	8.7	1.2	16.6
73Ga	4.86 h	1.2E+05	7.7E+03	1.5E+02	8.5	1.2	16.2
64Ge	63.7 s	1.2E+06	1.7E+04	3.1E+02	11.0	1.2	21.0
65Ge	30.9 s	1.3E+07	9.8E+04	1.8E+03	10.7	1.2	20.4
66Ge	2.26 h	7.0E+07	4.2E+06	7.9E+04	10.4	1.2	19.8
67Ge	18.9 m	2.2E+08	1.2E+07	2.2E+05	10.1	1.2	19.2
68Ge	270.95 d	3.8E+08	2.4E+07	4.4E+05	9.8	1.2	18.6
69Ge	39.05 h	4.0E+08	2.5E+07	4.7E+05	9.5	1.2	18.1
71Ge	11.43 d	6.0E+07	3.8E+06	7.1E+04	9.0	1.2	17.1
71Gem	20.4 ms	6.0E+07	3.2E+01	2.1E-01	9.0	1.2	17.1
73Gen	499 ms	4.8E+06	2.7E+02	4.7E+00	8.5	1.2	16.2
67As	42.5 s	9.3E+06	2.9E+04	5.4E+02	10.1	1.2	21.3
68As	151.6 s	2.8E+07	3.4E+05	6.2E+03	9.8	1.2	20.7
68Asm	111 s	2.8E+07	2.5E+05	4.6E+03	9.8	1.2	20.7
69As	15.2 m	1.9E+08	7.4E+06	1.4E+05	9.5	1.2	20.1
70As	52.6 m	3.8E+08	2.1E+07	3.8E+05	9.2	1.2	19.6
71As	65.28 h	4.9E+08	3.1E+07	5.7E+05	9.0	1.2	19.0
72As	26 h	3.9E+08	2.5E+07	4.5E+05	8.7	1.2	18.5
73As	80.3 d	2.1E+08	1.4E+07	2.5E+05	8.5	1.2	18.0
74As	17.77 d	6.9E+07	4.5E+06	8.2E+04	8.3	1.2	17.5
67Se	133 ms	2.6E+04	3.7E+00	5.1E-02	11.6	1.2	23.6
68Se	35.5 s	5.2E+05	1.8E+03	3.3E+01	11.3	1.2	22.9
69Se	27.4 s	5.7E+06	1.8E+04	3.2E+02	11.0	1.2	22.3
70Se	41.1 m	3.6E+07	9.2E+05	1.6E+04	10.7	1.2	21.7
71Se	4.74 m	1.4E+08	1.4E+06	2.5E+04	10.4	1.2	21.1
72Se	8.4 d	3.9E+08	2.5E+07	4.4E+05	10.1	1.2	20.5

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
73Se	7.15 h	3.5E+08	1.8E+07	3.2E+05	9.8	1.2	19.9
73Sem	39.8 m	3.5E+08	8.8E+06	1.6E+05	9.8	1.2	19.9
75Se	119.779 d	4.1E+08	2.7E+07	4.8E+05	9.3	1.2	18.9
70Br	79.1 ms	1.1E+05	5.4E+01	6.1E-01	10.7	1.2	21.7
70Brm	2.2 s	1.1E+05	2.4E+03	4.1E+01	10.7	1.2	21.7
71Br	21.4 s	2.4E+06	1.4E+05	2.4E+03	10.4	1.2	21.1
72Br	78.6 s	9.5E+06	6.0E+05	1.0E+04	10.1	1.2	20.5
72Brm	10.6 s	9.5E+06	4.9E+05	8.6E+03	10.1	1.2	20.5
73Br	3.4 m	1.0E+08	6.4E+06	1.1E+05	9.8	1.2	19.9
74Br	25.4 m	2.1E+08	1.3E+07	2.3E+05	9.6	1.2	19.4
74Brm	46 m	2.1E+08	1.3E+07	2.3E+05	9.6	1.2	19.4
75Br	96.7 m	1.0E+09	6.5E+07	1.1E+06	9.3	1.2	18.9
76Br	16.2 h	7.5E+08	4.9E+07	8.6E+05	9.1	1.2	18.4
76Brm	1.31 s	7.5E+08	1.1E+07	1.9E+05	9.1	1.2	18.4
77Br	57.036 h	4.5E+08	2.9E+07	5.1E+05	8.8	1.2	17.9
77Brm	4.28 m	4.5E+08	2.9E+07	5.1E+05	8.8	1.2	17.9
71Kr	100 ms	2.7E+03	2.2E+01	2.5E-01	10.4	1.2	21.1
72Kr	17.16 s	4.0E+04	1.7E+03	2.8E+01	10.1	1.2	20.5
73Kr	28.6 s	5.6E+05	2.6E+04	4.3E+02	9.8	1.2	19.9
74Kr	11.5 m	6.0E+06	3.6E+05	6.0E+03	9.6	1.2	19.4
75Kr	4.29 m	4.9E+07	2.8E+06	4.7E+04	9.3	1.2	18.9
76Kr	14.8 h	3.1E+08	2.0E+07	3.3E+05	9.1	1.2	18.4
77Kr	74.4 m	1.3E+09	8.3E+07	1.4E+06	8.8	1.2	17.9

86Kr on 12C (800W, 57.9 AMeV)

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	6.5E+07	2.5E+05	4.1E+04	7.4	1.8	24.9
8He	119 ms	8.0E+05	2.9E+03	4.5E+02	4.2	1.2	16.5
8Li	840.3 ms	8.4E+07	6.5E+06	2.6E+04	16.6	1.2	24.9
9Li	178.3 ms	1.2E+07	7.3E+05	2.8E+03	13.1	1.2	24.9
11Li	8.75 ms	8.9E+03	8.5E+01	2.0E-01	8.8	1.2	19.7
7Be	53.22 d	3.0E+08	2.3E+06	9.2E+03	21.6	1.4	24.9
10Be	1.51 My	1.0E+08	1.0E+06	4.1E+03	10.7	1.2	24.8
11Be	13.81 s	9.3E+05	1.0E+04	4.1E+01	8.8	1.2	24.9
12Be	21.5 ms	1.3E+05	3.6E+02	1.1E+00	7.4	1.2	24.9
14Be	4.35 ms	1.1E+03	8.6E-01	1.4E-03	5.4	1.2	21.6
12N	11 ms	2.3E+06	2.7E-05	6.0E-08	16.6	1.2	24.9
13N	9.965 m	1.0E+07	1.6E+03	6.5E+00	14.2	1.2	24.8
16N	7.13 s	8.7E+06	2.3E+00	9.1E-03	9.4	1.2	24.8
17N	4.173 s	2.3E+06	2.9E-01	1.1E-03	8.3	1.2	22.9
18N	622 ms	4.4E+05	3.3E-03	1.3E-05	7.4	1.2	20.5
19N	271 ms	6.1E+04	1.4E-04	5.4E-07	6.7	1.2	18.4
20N	130 ms	6.5E+03	5.2E-06	1.9E-08	6.0	1.2	16.6
21N	87 ms	5.5E+02	2.7E-07	9.7E-10	5.5	1.2	15.1
22N	13.9 ms	3.8E+01	1.3E-09	3.1E-12	5.0	1.2	13.7
13O	8.58 ms	2.1E+05	3.7E+00	6.1E-03	24.9	1.6	24.9
14O	70.598 s	2.1E+06	1.9E+04	7.7E+01	21.6	1.4	24.8
15O	122.24 s	1.0E+07	1.1E+05	4.3E+02	18.9	1.2	24.8
19O	26.464 s	3.2E+06	3.0E+04	1.2E+02	11.8	1.2	24.8
20O	13.51 s	6.6E+05	5.1E+03	2.1E+01	10.7	1.2	23.8
21O	3.42 s	1.0E+05	4.8E+02	1.9E+00	9.7	1.2	21.6
22O	2.25 s	1.2E+04	5.1E+01	2.0E-01	8.8	1.2	19.7
23O	90 ms	1.1E+03	6.3E-01	2.2E-03	8.1	1.2	18.1
24O	65 ms	8.4E+01	3.8E-02	1.3E-04	7.4	1.2	16.6
17F	64.49 s	9.5E+06	1.4E+05	5.4E+02	14.7	1.2	24.8
18F	109.771 m	2.4E+07	3.7E+05	1.5E+03	13.2	1.2	24.8
20F	11.163 s	1.4E+07	1.9E+05	7.8E+02	10.7	1.2	23.8
21F	4.158 s	4.4E+06	4.6E+04	1.8E+02	9.7	1.2	21.6
22F	4.23 s	9.8E+05	1.1E+04	4.5E+01	8.8	1.2	19.7
23F	2.23 s	1.6E+05	1.3E+03	5.2E+00	8.1	1.2	18.1
24F	400 ms	2.1E+04	3.1E+01	1.2E-01	7.4	1.2	16.6
25F	50 ms	2.2E+03	2.6E-01	8.4E-04	6.8	1.2	15.3
26F	10.2 ms	1.9E+02	3.2E-03	5.9E-06	6.3	1.2	14.2
27F	4.9 ms	1.3E+01	9.2E-05	1.1E-07	5.9	1.2	13.1
17Ne	109.2 ms	1.6E+05	1.9E+01	2.5E-01	22.9	1.2	24.8
18Ne	1.672 s	1.7E+06	1.2E+04	1.8E+02	20.5	1.2	24.8
19Ne	17.296 s	8.8E+06	1.4E+05	2.1E+03	18.4	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
23Ne	37.24 s	6.0E+06	1.3E+05	2.0E+03	12.6	1.2	24.8
24Ne	3.38 m	1.5E+06	3.6E+04	5.5E+02	11.6	1.2	24.8
25Ne	602 ms	2.7E+05	9.4E+02	1.4E+01	10.7	1.2	24.8
26Ne	197 ms	3.8E+04	2.4E+01	3.3E-01	9.9	1.2	24.8
27Ne	32 ms	4.4E+03	1.3E-01	1.4E-03	9.2	1.2	23.3
28Ne	18.3 ms	4.1E+02	5.0E-03	4.2E-05	8.5	1.2	21.6
29Ne	15.6 ms	3.2E+01	3.2E-04	2.4E-06	7.9	1.2	20.2
20Na	447.9 ms	1.4E+06	1.8E+04	1.8E+02	16.6	1.2	24.8
21Na	22.49 s	8.0E+06	9.0E+05	9.5E+03	15.1	1.2	24.8
22Na	2.6019 y	2.3E+07	2.7E+06	2.9E+04	13.8	1.2	24.8
24Na	14.959 h	1.1E+07	1.3E+06	1.4E+04	11.6	1.2	24.8
24Nam	20.2 ms	1.1E+07	2.4E+03	1.4E+01	11.6	1.2	24.8
25Na	59.1 s	8.2E+06	1.0E+06	1.1E+04	10.7	1.2	24.8
26Na	1.077 s	2.2E+06	8.0E+04	8.4E+02	9.9	1.2	24.8
27Na	301 ms	4.4E+05	3.8E+03	3.8E+01	9.2	1.2	23.3
28Na	30.5 ms	6.9E+04	2.9E+01	2.0E-01	8.5	1.2	21.6
29Na	44.9 ms	8.6E+03	6.1E+00	4.8E-02	7.9	1.2	20.2
30Na	48.4 ms	8.9E+02	7.1E-01	5.7E-03	7.4	1.2	18.9
31Na	17 ms	7.7E+01	1.5E-02	8.4E-05	6.9	1.2	17.7
20Mg	90 ms	6.6E+03	7.8E+00	6.9E-02	23.8	1.5	24.8
21Mg	122 ms	1.0E+05	1.7E+02	1.5E+00	21.6	1.4	24.8
22Mg	3.857 s	1.2E+06	2.6E+04	2.8E+02	19.7	1.2	24.8
23Mg	11.317 s	7.2E+06	2.3E+05	2.4E+03	18.1	1.2	24.8
27Mg	9.458 m	1.1E+07	5.1E+05	5.4E+03	13.2	1.2	24.8
28Mg	20.915 h	3.2E+06	1.5E+05	1.6E+03	12.2	1.2	24.8
29Mg	1.3 s	7.1E+05	1.2E+04	1.2E+02	11.4	1.2	24.8
30Mg	335 ms	1.2E+05	7.1E+02	7.1E+00	10.7	1.2	23.8
31Mg	230 ms	1.7E+04	7.5E+01	7.4E-01	10.0	1.2	22.3
32Mg	95 ms	1.9E+03	3.9E+00	3.4E-02	9.4	1.2	21.0
33Mg	90.5 ms	1.8E+02	3.6E-01	3.2E-03	8.8	1.2	19.7
34Mg	20 ms	1.5E+01	7.3E-03	4.1E-05	8.3	1.2	18.6
22Al	59 ms	5.0E+03	1.1E-02	1.2E-04	19.7	1.2	24.8
23Al	470 ms	8.0E+04	2.2E+00	2.9E-02	18.1	1.2	24.8
24Al	2.053 s	5.0E+05	8.1E+01	1.1E+00	16.6	1.2	24.8
24Alm	131.3 ms	5.0E+05	3.4E+00	4.1E-02	16.6	1.2	24.8
25Al	7.183 s	6.2E+06	4.6E+03	6.3E+01	15.3	1.2	24.8
26Al	717 ky	1.1E+07	2.9E+05	4.0E+03	14.2	1.2	24.8
26Alm	6.3452 s	1.1E+07	7.2E+03	9.9E+01	14.2	1.2	24.8
28Al	2.2414 m	3.2E+07	4.7E+05	6.5E+03	12.2	1.2	24.8
29Al	6.56 m	1.5E+07	3.8E+05	5.2E+03	11.4	1.2	24.8
30Al	3.6 s	4.8E+06	2.2E+03	3.0E+01	10.7	1.2	23.9
31Al	644 ms	1.1E+06	7.2E+01	9.6E-01	10.0	1.2	22.4

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
32Al	31.7 ms	2.2E+05	4.6E-01	4.0E-03	9.4	1.2	21.0
33Al	41.7 ms	3.3E+04	9.9E-02	9.5E-04	8.8	1.2	19.8
34Al	56.3 ms	4.1E+03	1.8E-02	1.9E-04	8.3	1.2	18.6
35Al	38.6 ms	4.4E+02	1.3E-03	1.2E-05	7.9	1.2	17.6
36Al	90 ms	4.0E+01	3.3E-04	3.8E-06	7.4	1.2	16.6
26P	30 ms	2.6E+03	3.0E-03	3.0E-05	19.2	1.6	24.8
27P	260 ms	4.3E+04	1.9E-01	3.1E-03	17.9	1.5	24.8
28P	270.3 ms	6.0E+05	3.0E+00	4.7E-02	16.6	1.4	24.8
29P	4.142 s	4.4E+06	1.2E+02	2.0E+00	15.5	1.3	24.8
30P	2.498 m	1.8E+07	4.6E+03	7.9E+01	14.5	1.2	24.8
32P	14.263 d	4.4E+07	1.1E+06	1.9E+04	12.8	1.2	24.8
33P	25.34 d	2.5E+07	7.3E+05	1.2E+04	12.0	1.2	24.3
34P	12.43 s	9.9E+06	6.7E+02	1.1E+01	11.3	1.2	22.9
35P	47.3 s	2.9E+06	4.6E+02	7.9E+00	10.7	1.2	21.7
36P	5.6 s	6.5E+05	3.0E+01	5.0E-01	10.1	1.2	20.5
37P	2.31 s	1.2E+05	3.3E+00	5.6E-02	9.6	1.2	19.4
38P	640 ms	1.8E+04	2.4E-01	3.9E-03	9.1	1.2	18.4
39P	190 ms	2.4E+03	1.6E-02	2.4E-04	8.6	1.2	17.5
40P	153 ms	2.6E+02	1.5E-03	2.3E-05	8.2	1.2	16.6
41P	150 ms	2.5E+01	1.5E-04	2.2E-06	7.8	1.2	15.8
31Cl	150 ms	2.1E+04	1.4E+01	2.2E-01	17.7	1.2	24.8
32Cl	298 ms	3.2E+05	5.2E+02	8.9E+00	16.6	1.2	24.8
33Cl	2.511 s	2.7E+06	4.3E+04	8.0E+02	15.6	1.2	24.8
34Cl	1.5264 s	6.5E+06	7.1E+04	1.3E+03	14.7	1.2	24.8
34Clm	32 m	6.5E+06	2.7E+05	5.1E+03	14.7	1.2	24.8
36Cl	301 ky	5.4E+07	2.5E+06	4.6E+04	13.2	1.2	24.8
38Cl	37.24 m	9.5E+06	4.7E+05	8.7E+03	11.8	1.2	24.8
38Clm	715 ms	9.5E+06	5.5E+04	9.9E+02	11.8	1.2	24.8
39Cl	55.6 m	6.8E+06	3.5E+05	6.5E+03	11.2	1.2	24.8
40Cl	1.35 m	1.9E+06	9.9E+04	1.8E+03	10.7	1.2	23.9
41Cl	38.4 s	4.2E+05	2.1E+04	4.0E+02	10.2	1.2	22.7
42Cl	6.8 s	7.6E+04	2.9E+03	5.3E+01	9.7	1.2	21.7
43Cl	3.07 s	1.2E+04	3.0E+02	5.5E+00	9.2	1.2	20.7
44Cl	560 ms	1.6E+03	7.7E+00	1.4E-01	8.8	1.2	19.8
45Cl	400 ms	1.9E+02	6.2E-01	1.1E-02	8.4	1.2	18.9
31Ar	14.4 ms	4.4E+01	8.7E-02	1.2E-03	17.7	1.2	24.8
32Ar	98 ms	7.7E+02	8.0E+00	2.4E-01	16.6	1.2	24.8
33Ar	173 ms	1.4E+04	2.2E+02	7.3E+00	15.6	1.2	24.8
34Ar	845 ms	2.2E+05	7.0E+03	2.6E+02	14.7	1.2	24.8
35Ar	1.775 s	2.1E+06	7.9E+04	3.0E+03	13.9	1.2	24.8
37Ar	35.04 d	3.3E+07	1.6E+06	6.0E+04	12.5	1.2	24.8
39Ar	269 y	5.0E+07	2.6E+06	9.7E+04	11.2	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
41Ar	109.61 m	1.0E+07	5.3E+05	2.0E+04	10.2	1.2	22.7
42Ar	32.9 y	3.1E+06	1.7E+05	6.3E+03	9.7	1.2	21.7
43Ar	5.37 m	7.5E+05	4.1E+04	1.5E+03	9.2	1.2	20.7
44Ar	11.87 m	1.5E+05	8.2E+03	3.1E+02	8.8	1.2	19.8
45Ar	21.48 s	2.6E+04	1.4E+03	5.3E+01	8.4	1.2	18.9
46Ar	8.4 s	3.9E+03	2.1E+02	7.8E+00	8.1	1.2	18.1
47Ar	580 ms	5.0E+02	1.9E+01	6.8E-01	7.7	1.2	17.3
48Ar	500# ms	5.8E+01	2.1E+00	7.5E-02	7.4	1.2	16.6
35K	178 ms	8.7E+03	6.1E+02	1.3E+01	13.9	1.2	24.8
36K	342 ms	1.5E+05	1.6E+04	3.5E+02	13.2	1.2	24.8
37K	1.226 s	1.5E+06	2.7E+05	6.1E+03	12.5	1.2	24.8
38K	7.636 m	4.3E+06	1.1E+06	2.6E+04	11.8	1.2	24.8
38Kxm	923.9 ms	4.3E+06	7.1E+05	1.6E+04	11.8	1.2	24.8
40K	1.251 Gy	5.6E+07	1.5E+07	3.4E+05	10.7	1.2	23.9
42K	12.36 h	3.5E+07	9.1E+06	2.1E+05	9.7	1.2	21.7
43K	22.3 h	1.5E+07	3.9E+06	9.2E+04	9.2	1.2	20.7
44K	22.13 m	5.0E+06	1.3E+06	3.1E+04	8.8	1.2	19.8
45K	17.3 m	1.3E+06	3.4E+05	8.0E+03	8.4	1.2	18.9
46K	105 s	3.0E+05	7.8E+04	1.8E+03	8.1	1.2	18.1
47K	17.5 s	5.6E+04	1.4E+04	3.3E+02	7.7	1.2	17.3
48K	6.8 s	9.1E+03	2.2E+03	5.1E+01	7.4	1.2	16.6
49K	1.26 s	1.3E+03	2.4E+02	5.5E+00	7.1	1.2	16.0
50K	472 ms	1.7E+02	2.2E+01	4.9E-01	6.8	1.2	15.3
35Ca	25.7 ms	1.6E+01	2.3E-06	2.7E-08	17.6	1.4	24.8
36Ca	102 ms	2.9E+02	5.4E-04	1.0E-05	16.6	1.3	24.8
37Ca	181.1 ms	5.3E+03	2.9E-02	5.9E-04	15.7	1.2	24.8
38Ca	440 ms	9.6E+04	2.7E+00	6.0E-02	14.9	1.2	24.8
39Ca	859.6 ms	1.0E+06	9.8E+01	2.2E+00	14.2	1.2	24.8
41Ca	102 ky	2.5E+07	2.2E+06	5.2E+04	12.8	1.2	24.8
45Ca	162.67 d	2.2E+07	2.0E+06	4.6E+04	10.7	1.2	22.1
47Ca	4.536 d	2.3E+06	2.1E+05	4.9E+03	9.8	1.2	20.3
48Ca	53 Ey	5.7E+05	5.2E+04	1.2E+03	9.4	1.2	19.5
49Ca	8.718 m	1.2E+05	1.1E+04	2.5E+02	9.0	1.2	18.7
50Ca	13.9 s	2.1E+04	3.0E+02	7.0E+00	8.7	1.2	18.0
51Ca	10 s	3.3E+03	2.8E+01	6.5E-01	8.3	1.2	17.3
52Ca	4.6 s	4.7E+02	1.0E+00	2.4E-02	8.0	1.2	16.6
53Ca	90 ms	5.9E+01	1.0E-04	1.8E-06	7.7	1.2	16.0
40Sc	182.3 ms	5.9E+04	1.0E+01	2.1E-01	13.5	1.2	24.8
41Sc	596.3 ms	7.0E+05	3.9E+02	8.8E+00	12.8	1.2	24.8
42Sc	681.3 ms	2.5E+06	1.6E+03	3.6E+01	12.2	1.2	24.8
42Scm	61.7 s	2.5E+06	7.0E+04	1.6E+03	12.2	1.2	24.8
43Sc	3.891 h	2.1E+07	1.1E+06	2.6E+04	11.7	1.2	24.2

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
44Sc	3.97 h	2.5E+07	1.4E+06	3.2E+04	11.2	1.2	23.2
44Scm	58.61 h	2.5E+07	1.4E+06	3.2E+04	11.2	1.2	23.2
45Scm	318 ms	3.7E+07	1.1E+04	2.4E+02	10.7	1.2	22.1
46Sc	83.79 d	2.9E+07	1.6E+06	3.7E+04	10.2	1.2	21.2
46Scm	18.75 s	2.9E+07	4.0E+05	9.3E+03	10.2	1.2	21.2
47Sc	3.3492 d	3.1E+07	1.7E+06	4.0E+04	9.8	1.2	20.3
48Sc	43.67 h	1.2E+07	6.7E+05	1.6E+04	9.4	1.2	19.5
49Sc	57.2 m	4.0E+06	2.2E+05	5.2E+03	9.0	1.2	18.7
50Sc	102.5 s	5.5E+05	2.0E+04	4.7E+02	8.7	1.2	18.0
50Scm	350 ms	5.5E+05	1.9E+02	4.2E+00	8.7	1.2	18.0
51Sc	12.4 s	2.4E+05	2.5E+03	5.8E+01	8.3	1.2	17.3
52Sc	8.2 s	4.8E+04	3.5E+02	8.2E+00	8.0	1.2	16.6
54Sc	260 ms	1.3E+03	3.5E-01	7.3E-03	7.4	1.2	15.4
55Sc	120 ms	1.8E+02	2.2E-02	4.3E-04	7.2	1.2	14.9
44Cr	54 ms	2.8E+01	1.1E-07	1.6E-09	13.8	1.2	24.8
45Cr	50 ms	2.7E+02	9.0E-07	1.3E-08	13.2	1.2	24.8
45Crm	1# ms	2.7E+02	2.5E-09	1.9E-12	13.2	1.2	24.8
46Cr	260 ms	1.0E+04	4.1E-04	8.5E-06	12.6	1.2	24.8
47Cr	500 ms	1.6E+05	1.7E-02	3.8E-04	12.1	1.2	24.8
48Cr	21.56 h	1.6E+06	8.9E+04	2.1E+03	11.6	1.2	24.8
49Cr	42.3 m	9.1E+06	2.1E+05	5.0E+03	11.1	1.2	24.8
51Cr	27.7025 d	7.0E+07	4.0E+06	9.3E+04	10.3	1.2	22.9
55Cr	3.497 m	1.7E+07	1.6E+04	3.8E+02	8.8	1.2	19.8
56Cr	5.94 m	6.2E+06	1.3E+04	3.1E+02	8.5	1.2	19.1
57Cr	21.1 s	1.9E+06	6.0E+01	1.4E+00	8.2	1.2	18.4
58Cr	7 s	4.8E+05	2.9E+00	6.8E-02	7.9	1.2	17.8
59Cr	460 ms	1.1E+05	1.1E-02	2.5E-04	7.7	1.2	17.2
60Cr	560 ms	2.2E+04	3.1E-03	6.8E-05	7.4	1.2	16.6
61Cr	261 ms	4.1E+03	1.8E-04	3.8E-06	7.2	1.2	16.1
62Cr	199 ms	6.9E+02	2.1E-05	4.2E-07	7.0	1.2	15.6
47Mn	100 ms	2.7E+02	4.6E-01	7.3E-03	14.6	1.2	24.8
48Mn	158.1 ms	5.2E+03	1.7E+01	3.0E-01	14.0	1.2	24.8
49Mn	382 ms	9.1E+04	9.8E+02	1.9E+01	13.4	1.2	24.8
50Mn	283.9 ms	4.9E+05	3.6E+03	6.8E+01	12.9	1.2	24.8
50Mnm	1.75 m	4.9E+05	2.7E+04	5.8E+02	12.9	1.2	24.8
51Mn	46.2 m	6.4E+06	3.6E+05	7.7E+03	12.4	1.2	24.8
52Mn	5.591 d	1.3E+07	7.2E+05	1.5E+04	11.9	1.2	24.8
52Mnm	21.1 m	1.3E+07	7.2E+05	1.5E+04	11.9	1.2	24.8
53Mn	3.7 My	6.3E+07	3.6E+06	7.7E+04	11.5	1.2	24.2
54Mn	312.03 d	9.7E+07	5.6E+06	1.2E+05	11.1	1.2	23.3
56Mn	2.5789 h	5.6E+07	3.3E+06	7.0E+04	10.3	1.2	21.7
57Mn	85.4 s	2.7E+07	1.6E+06	3.4E+04	9.9	1.2	20.9

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
58Mn	3 s	5.0E+06	2.5E+05	5.2E+03	9.6	1.2	20.2
58Mnm	65.2 s	5.0E+06	3.0E+05	6.3E+03	9.6	1.2	20.2
59Mn	4.59 s	3.5E+06	1.9E+05	4.0E+03	9.3	1.2	19.5
60Mn	51 s	5.0E+05	3.0E+04	6.3E+02	9.0	1.2	18.9
60Mnm	1.77 s	5.0E+05	2.1E+04	4.3E+02	9.0	1.2	18.9
61Mn	670 ms	2.5E+05	5.3E+03	1.1E+02	8.7	1.2	18.3
62Mn	671 ms	2.8E+04	5.9E+02	1.2E+01	8.4	1.2	17.7
62Mnm	92 ms	2.8E+04	4.5E+01	7.1E-01	8.4	1.2	17.7
63Mn	275 ms	1.1E+04	8.5E+01	1.6E+00	8.1	1.2	17.2
64Mn	88.8 ms	2.0E+03	3.2E+00	4.9E-02	7.9	1.2	16.6
65Mn	92 ms	3.5E+02	5.9E-01	9.2E-03	7.7	1.2	16.1
49Fe	70 ms	1.3E+02	7.5E-07	1.1E-08	13.4	1.2	24.8
50Fe	155 ms	2.6E+03	5.0E-05	8.5E-07	12.9	1.2	24.8
51Fe	305 ms	4.8E+04	2.6E-03	4.8E-05	12.4	1.2	24.8
52Fe	8.275 h	2.9E+05	1.6E+04	3.3E+02	11.9	1.2	24.8
52Fem	45.9 s	2.9E+05	2.8E+01	5.8E-01	11.9	1.2	24.8
53Fe	8.51 m	2.1E+06	7.3E+03	1.5E+02	11.5	1.2	24.2
53Fem	2.526 m	2.1E+06	1.2E+03	2.6E+01	11.5	1.2	24.2
55Fe	2.737 y	5.4E+07	3.1E+06	6.6E+04	10.7	1.2	22.5
59Fe	44.495 d	4.0E+07	2.4E+06	5.0E+04	9.3	1.2	19.5
60Fe	1.5 My	1.7E+07	1.0E+06	2.1E+04	9.0	1.2	18.9
61Fe	5.98 m	6.3E+06	1.4E+04	2.9E+02	8.7	1.2	18.3
62Fe	68 s	2.0E+06	3.8E+02	7.8E+00	8.4	1.2	17.7
63Fe	6.1 s	5.4E+05	2.8E+00	5.7E-02	8.2	1.2	17.2
64Fe	2 s	1.3E+05	1.3E-01	2.6E-03	7.9	1.2	16.6
65Fe	1.3 s	2.9E+04	1.5E-02	3.0E-04	7.7	1.2	16.1
66Fe	440 ms	5.9E+03	5.9E-04	1.1E-05	7.4	1.2	15.6
67Fe	394 ms	1.1E+03	9.4E-05	1.8E-06	7.2	1.2	15.2
68Fe	187 ms	1.9E+02	5.4E-06	9.5E-08	7.0	1.2	14.7
69Fe	109 ms	3.0E+01	3.8E-07	6.0E-09	6.8	1.2	14.3
51Co	60# ms	6.2E+01	2.9E-07	3.9E-09	12.4	1.2	24.8
52Co	115 ms	6.0E+02	7.4E-06	1.2E-07	11.9	1.2	24.8
52Com	104 ms	6.0E+02	6.4E-06	1.0E-07	11.9	1.2	24.8
53Co	242 ms	1.2E+04	4.4E-04	8.0E-06	11.5	1.2	24.2
53Com	247 ms	1.2E+04	4.5E-04	8.3E-06	11.5	1.2	24.2
54Co	193.23 ms	1.6E+05	4.4E-03	7.8E-05	11.1	1.2	23.3
54Com	1.48 m	1.6E+05	4.3E+01	8.9E-01	11.1	1.2	23.3
55Co	17.53 h	2.6E+06	1.5E+05	3.1E+03	10.7	1.2	22.5
56Co	77.23 d	1.3E+07	7.6E+05	1.6E+04	10.3	1.2	21.7
57Co	271.74 d	4.4E+07	2.6E+06	5.4E+04	9.9	1.2	20.9
58Co	70.86 d	4.5E+07	2.6E+06	5.5E+04	9.6	1.2	20.2
58Com	9.04 h	4.5E+07	2.6E+06	5.3E+04	9.6	1.2	20.2

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
60Co	5.2713 y	4.9E+07	2.9E+06	6.1E+04	9.0	1.2	18.9
60Com	10.467 m	4.9E+07	2.4E+05	4.9E+03	9.0	1.2	18.9
61Co	1.65 h	5.8E+07	2.5E+06	5.2E+04	8.7	1.2	18.3
62Co	1.5 m	1.4E+07	4.0E+03	8.3E+01	8.4	1.2	17.7
62Com	13.91 m	1.4E+07	1.0E+05	2.1E+03	8.4	1.2	17.7
63Co	26.9 s	1.1E+07	5.2E+02	1.1E+01	8.2	1.2	17.2
64Co	300 ms	3.8E+06	2.1E-01	4.0E-03	7.9	1.2	16.6
65Co	1.2 s	1.1E+06	5.0E-01	1.0E-02	7.7	1.2	16.1
66Co	194 ms	3.1E+05	9.1E-03	1.6E-04	7.4	1.2	15.6
67Co	425 ms	7.4E+04	7.1E-03	1.4E-04	7.2	1.2	15.2
68Co	200 ms	8.0E+03	2.5E-04	4.5E-06	7.0	1.2	14.7
68Com	1.6 s	8.0E+03	5.6E-03	1.2E-04	7.0	1.2	14.7
69Co	227 ms	3.3E+03	1.2E-04	2.3E-06	6.8	1.2	14.3
70Co	125 ms	3.2E+02	5.0E-06	8.2E-08	6.6	1.2	13.9
70Com	500 ms	3.2E+02	4.0E-05	7.8E-07	6.6	1.2	13.9
53Ni	45 ms	2.8E+01	8.5E-08	9.9E-10	13.7	1.2	24.8
54Ni	104 ms	5.5E+02	5.9E-06	9.2E-08	13.2	1.2	24.8
55Ni	204.7 ms	1.1E+04	3.3E-04	5.8E-06	12.7	1.2	24.8
56Ni	6.075 d	1.6E+05	9.4E+03	2.0E+02	12.3	1.2	24.4
57Ni	35.6 h	1.5E+06	8.8E+04	1.8E+03	11.8	1.2	23.6
59Ni	101 ky	3.3E+07	2.0E+06	4.1E+04	11.0	1.2	22.0
63Ni	100.1 y	8.1E+07	4.9E+06	1.0E+05	9.7	1.2	19.4
65Ni	2.5172 h	1.9E+07	9.7E+05	2.0E+04	9.1	1.2	18.2
66Ni	54.6 h	7.1E+06	4.4E+05	9.2E+03	8.8	1.2	17.7
67Ni	21 s	2.3E+06	7.7E+01	1.6E+00	8.6	1.2	17.1
68Ni	29 s	6.9E+05	3.7E+01	7.8E-01	8.3	1.2	16.6
69Ni	11.5 s	9.0E+04	1.2E+00	2.6E-02	8.1	1.2	16.2
69Nim	3.5 s	9.0E+04	2.1E-01	4.3E-03	8.1	1.2	16.2
70Ni	6 s	4.5E+04	2.3E-01	4.8E-03	7.9	1.2	15.7
71Ni	2.56 s	1.1E+04	1.6E-02	3.3E-04	7.6	1.2	15.3
72Ni	1.57 s	2.4E+03	1.7E-03	3.4E-05	7.4	1.2	14.8
73Ni	840 ms	5.3E+02	1.5E-04	2.9E-06	7.2	1.2	14.4
74Ni	680 ms	1.1E+02	2.2E-05	4.4E-07	7.0	1.2	14.1
75Ni	600 ms	2.2E+01	3.7E-06	7.3E-08	6.8	1.2	13.7
55Cu	40# ms	1.2E+01	4.2E-02	4.3E-04	12.7	1.2	24.8
56Cu	93 ms	2.4E+02	2.0E+00	2.8E-02	12.2	1.2	24.4
57Cu	196.3 ms	4.7E+03	7.1E+01	1.2E+00	11.8	1.2	23.6
58Cu	3.204 s	8.0E+04	3.9E+03	7.6E+01	11.4	1.2	22.8
59Cu	81.5 s	8.5E+05	5.0E+04	9.9E+02	11.0	1.2	22.0
60Cu	23.7 m	5.7E+06	3.4E+05	6.8E+03	10.7	1.2	21.3
61Cu	3.333 h	2.4E+07	1.4E+06	2.9E+04	10.3	1.2	20.6
62Cu	9.673 m	6.6E+07	4.0E+06	7.9E+04	10.0	1.2	20.0

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
64Cu	12.7 h	1.4E+08	8.6E+06	1.7E+05	9.4	1.2	18.8
66Cu	5.12 m	6.4E+07	4.0E+06	7.8E+04	8.8	1.2	17.7
67Cu	61.83 h	3.1E+07	1.9E+06	3.8E+04	8.6	1.2	17.1
68Cu	31.1 s	6.5E+06	4.0E+05	7.9E+03	8.3	1.2	16.6
68Cum	3.75 m	6.5E+06	4.1E+05	8.0E+03	8.3	1.2	16.6
69Cu	2.85 m	4.7E+06	3.0E+05	5.8E+03	8.1	1.2	16.2
70Cu	44.5 s	5.0E+05	3.1E+04	6.2E+02	7.9	1.2	15.7
70Cum	33 s	5.0E+05	3.1E+04	6.1E+02	7.9	1.2	15.7
70Cun	6.6 s	5.0E+05	2.9E+04	5.6E+02	7.9	1.2	15.7
71Cu	19.4 s	4.6E+05	2.8E+04	5.6E+02	7.6	1.2	15.3
72Cu	6.6 s	1.3E+05	7.5E+03	1.5E+02	7.4	1.2	14.9
73Cu	4.2 s	3.6E+04	2.0E+03	3.9E+01	7.2	1.2	14.4
74Cu	1.594 s	9.5E+03	4.3E+02	8.3E+00	7.0	1.2	14.1
75Cu	1.224 s	2.3E+03	9.7E+01	1.9E+00	6.8	1.2	13.7
76Cu	641 ms	2.6E+02	8.4E+00	1.6E-01	6.7	1.2	13.3
76Cum	1.27 s	2.6E+02	1.1E+01	2.1E-01	6.7	1.2	13.3
77Cu	469 ms	9.5E+01	2.7E+00	5.0E-02	6.5	1.2	13.0
78Cu	342 ms	1.4E+01	3.4E-01	6.1E-03	6.3	1.2	12.7
58Zn	84 ms	9.8E+01	2.3E-01	3.1E-03	11.4	1.2	22.8
59Zn	182 ms	1.9E+03	8.6E+00	1.4E-01	11.0	1.2	22.0
60Zn	2.38 m	3.6E+04	2.0E+03	3.9E+01	10.7	1.2	21.3
61Zn	89.1 s	2.2E+05	1.2E+04	2.3E+02	10.3	1.2	20.6
61Znn	140 ms	2.2E+05	8.0E+02	1.2E+01	10.3	1.2	20.6
62Zn	9.186 h	3.3E+06	2.0E+05	3.9E+03	10.0	1.2	20.0
63Zn	38.47 m	1.6E+07	9.7E+05	1.9E+04	9.7	1.2	19.4
65Zn	244.06 d	1.1E+08	6.8E+06	1.3E+05	9.1	1.2	18.2
69Zn	56.4 m	2.5E+07	1.5E+06	3.0E+04	8.1	1.2	16.2
69Znm	13.76 h	2.5E+07	1.5E+06	3.0E+04	8.1	1.2	16.2
71Zn	2.45 m	4.7E+06	2.8E+05	5.4E+03	7.6	1.2	15.3
71Znm	3.96 h	4.7E+06	3.0E+05	5.7E+03	7.6	1.2	15.3
72Zn	46.5 h	3.5E+06	2.2E+05	4.4E+03	7.4	1.2	14.9
73Zn	23.5 s	4.0E+05	1.9E+04	3.7E+02	7.2	1.2	14.5
73Znm	13 ms	4.0E+05	1.2E+02	6.0E-01	7.2	1.2	14.5
73Znn	5.8 s	4.0E+05	1.2E+04	2.4E+02	7.2	1.2	14.5
74Zn	95.6 s	4.1E+05	2.4E+04	4.7E+02	7.0	1.2	14.1
75Zn	10.2 s	1.3E+05	5.0E+03	9.7E+01	6.8	1.2	13.7
76Zn	5.7 s	3.6E+04	1.1E+03	2.2E+01	6.7	1.2	13.3
77Zn	2.08 s	4.4E+03	9.1E+01	1.7E+00	6.5	1.2	13.0
77Znm	1.05 s	4.4E+03	6.5E+01	1.2E+00	6.5	1.2	13.0
78Zn	1.47 s	1.8E+03	3.2E+01	6.0E-01	6.3	1.2	12.7
79Zn	995 ms	2.7E+02	3.9E+00	7.3E-02	6.2	1.2	12.3
80Zn	545 ms	2.9E+01	3.0E-01	5.5E-03	6.0	1.2	12.0

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
60Ga	70 ms	3.9E+01	3.0E-02	3.6E-04	12.5	1.2	23.9
61Ga	168 ms	7.6E+02	1.4E+00	2.2E-02	12.1	1.2	23.1
62Ga	115.99 ms	1.5E+04	2.0E+01	2.8E-01	11.7	1.2	22.4
63Ga	32.4 s	2.1E+05	7.4E+03	1.4E+02	11.4	1.2	21.7
64Ga	2.627 m	1.8E+06	9.3E+04	1.8E+03	11.0	1.2	21.0
65Ga	15.2 m	1.0E+07	6.0E+05	1.1E+04	10.7	1.2	20.4
66Ga	9.49 h	3.7E+07	2.3E+06	4.4E+04	10.4	1.2	19.8
67Ga	3.2612 d	9.0E+07	5.6E+06	1.1E+05	10.1	1.2	19.2
68Ga	67.71 m	1.5E+08	9.4E+06	1.8E+05	9.8	1.2	18.6
70Ga	21.14 m	1.2E+08	7.4E+06	1.4E+05	9.2	1.2	17.6
72Ga	14.1 h	2.1E+07	1.3E+06	2.5E+04	8.7	1.2	16.6
72Gam	39.68 ms	2.1E+07	8.5E+03	8.1E+01	8.7	1.2	16.6
73Ga	4.86 h	1.9E+07	1.2E+06	2.3E+04	8.5	1.2	16.2
74Ga	8.12 m	4.2E+06	2.6E+05	4.9E+03	8.3	1.2	15.8
74Gam	9.5 s	4.2E+06	9.8E+04	1.9E+03	8.3	1.2	15.8
75Ga	126 s	3.4E+06	1.8E+05	3.4E+03	8.0	1.2	15.3
76Ga	32.6 s	1.2E+06	4.5E+04	8.6E+02	7.8	1.2	14.9
77Ga	13.2 s	4.1E+05	1.1E+04	2.1E+02	7.6	1.2	14.6
78Ga	5.09 s	1.2E+05	2.2E+03	4.1E+01	7.4	1.2	14.2
79Ga	2.847 s	2.7E+04	3.7E+02	6.9E+00	7.2	1.2	13.8
80Ga	1.697 s	4.8E+03	5.0E+01	9.3E-01	7.1	1.2	13.5
81Ga	1.217 s	5.6E+02	4.9E+00	9.0E-02	6.9	1.2	13.2
62Ge	130 ms	1.5E+01	1.2E-04	1.7E-06	11.7	1.2	22.4
63Ge	142 ms	2.8E+02	2.5E-03	3.7E-05	11.4	1.2	21.7
64Ge	63.7 s	5.8E+03	8.1E+01	1.5E+00	11.0	1.2	21.0
65Ge	30.9 s	9.1E+04	6.9E+02	1.3E+01	10.7	1.2	20.4
66Ge	2.26 h	9.1E+05	5.5E+04	1.0E+03	10.4	1.2	19.8
67Ge	18.9 m	5.9E+06	3.1E+05	5.8E+03	10.1	1.2	19.2
68Ge	270.95 d	2.5E+07	1.6E+06	2.9E+04	9.8	1.2	18.6
69Ge	39.05 h	7.1E+07	4.5E+06	8.3E+04	9.5	1.2	18.1
71Ge	11.43 d	9.0E+07	5.7E+06	1.1E+05	9.0	1.2	17.1
71Gem	20.4 ms	9.0E+07	4.8E+01	3.1E-01	9.0	1.2	17.1
73Gen	499 ms	6.0E+07	3.4E+03	6.0E+01	8.5	1.2	16.2
75Ge	82.78 m	2.0E+07	1.3E+06	2.3E+04	8.0	1.2	15.3
75Gem	47.7 s	2.0E+07	2.3E+05	4.4E+03	8.0	1.2	15.3
76Ge	1.58 Zy	2.0E+07	1.3E+06	2.4E+04	7.8	1.2	14.9
77Ge	11.3 h	4.5E+06	2.9E+05	5.4E+03	7.6	1.2	14.6
77Gem	52.9 s	4.5E+06	5.7E+04	1.1E+03	7.6	1.2	14.6
78Ge	88 m	3.6E+06	2.3E+05	4.3E+03	7.4	1.2	14.2
79Ge	18.98 s	6.5E+05	3.3E+03	6.2E+01	7.2	1.2	13.8
79Gem	39 s	6.5E+05	6.5E+03	1.2E+02	7.2	1.2	13.8
80Ge	29.5 s	3.6E+05	2.8E+03	5.3E+01	7.1	1.2	13.5

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
81Ge	8 s	4.0E+04	8.3E+01	1.5E+00	6.9	1.2	13.2
81Gem	8 s	4.0E+04	8.3E+01	1.5E+00	6.9	1.2	13.2
82Ge	4.55 s	1.1E+04	1.2E+01	2.2E-01	6.7	1.2	12.8
65As	170 ms	1.0E+02	1.2E-04	1.8E-06	10.7	1.2	22.7
66As	95.77 ms	2.0E+03	1.1E-03	1.4E-05	10.4	1.2	22.0
67As	42.5 s	3.6E+04	1.1E+02	2.1E+00	10.1	1.2	21.3
68As	151.6 s	2.1E+05	2.6E+03	4.7E+01	9.8	1.2	20.7
68Asm	111 s	2.1E+05	1.9E+03	3.5E+01	9.8	1.2	20.7
69As	15.2 m	3.2E+06	1.3E+05	2.3E+03	9.5	1.2	20.1
70As	52.6 m	1.5E+07	8.1E+05	1.5E+04	9.2	1.2	19.6
71As	65.28 h	4.9E+07	3.1E+06	5.7E+04	9.0	1.2	19.0
72As	26 h	1.1E+08	7.0E+06	1.3E+05	8.7	1.2	18.5
73As	80.3 d	1.7E+08	1.1E+07	2.0E+05	8.5	1.2	18.0
74As	17.77 d	2.0E+08	1.3E+07	2.4E+05	8.3	1.2	17.5
75Asm	17.62 ms	8.5E+07	3.8E+00	2.1E-02	8.0	1.2	17.1
76As	1.0778 d	1.3E+08	8.5E+06	1.5E+05	7.8	1.2	16.6
77As	38.83 h	8.1E+07	5.3E+06	9.7E+04	7.6	1.2	16.2
78As	90.7 m	4.6E+07	2.8E+06	5.1E+04	7.4	1.2	15.8
79As	9.01 m	2.4E+07	7.8E+05	1.4E+04	7.2	1.2	15.4
80As	15.2 s	1.1E+07	9.9E+03	1.8E+02	7.1	1.2	15.0
81As	33.3 s	4.3E+06	1.1E+04	2.0E+02	6.9	1.2	14.7
82As	19.1 s	6.5E+05	8.1E+02	1.5E+01	6.7	1.2	14.3
82Asm	13.6 s	6.5E+05	5.1E+02	9.3E+00	6.7	1.2	14.3
83As	13.4 s	2.5E+05	1.9E+02	3.5E+00	6.6	1.2	14.0
67Se	133 ms	3.4E+01	4.9E-03	6.6E-05	11.6	1.2	23.6
68Se	35.5 s	6.5E+02	2.3E+00	4.1E-02	11.3	1.2	22.9
69Se	27.4 s	1.3E+04	4.1E+01	7.2E-01	11.0	1.2	22.3
70Se	41.1 m	1.7E+05	4.3E+03	7.8E+01	10.7	1.2	21.7
71Se	4.74 m	1.4E+06	1.4E+04	2.5E+02	10.4	1.2	21.1
72Se	8.4 d	7.7E+06	4.9E+05	8.8E+03	10.1	1.2	20.5
73Se	7.15 h	1.4E+07	7.4E+05	1.3E+04	9.8	1.2	19.9
73Sem	39.8 m	1.4E+07	3.6E+05	6.4E+03	9.8	1.2	19.9
75Se	119.779 d	1.4E+08	9.1E+06	1.6E+05	9.3	1.2	18.9
77Sem	17.36 s	1.2E+08	3.0E+05	5.3E+03	8.8	1.2	17.9
79Se	295 ky	8.5E+07	5.7E+06	1.0E+05	8.4	1.2	17.1
79Sem	3.92 m	8.5E+07	7.9E+05	1.4E+04	8.4	1.2	17.1
81Se	18.45 m	4.1E+07	7.9E+05	1.4E+04	8.0	1.2	16.2
81Sem	57.28 m	4.1E+07	1.3E+06	2.3E+04	8.0	1.2	16.2
82Se	97 Ey	4.5E+07	3.0E+06	5.5E+04	7.8	1.2	15.8
83Se	22.3 m	9.5E+06	2.0E+05	3.6E+03	7.6	1.2	15.5
83Sem	70.1 s	9.5E+06	5.1E+04	9.0E+02	7.6	1.2	15.5
84Se	3.1 m	6.1E+06	5.2E+04	9.4E+02	7.4	1.2	15.1

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
70Br	79.1 ms	1.0E+02	5.1E-02	5.9E-04	10.7	1.2	21.7
70Brm	2.2 s	1.0E+02	2.3E+00	3.9E-02	10.7	1.2	21.7
71Br	21.4 s	3.9E+03	2.3E+02	4.0E+00	10.4	1.2	21.1
72Br	78.6 s	2.7E+04	1.7E+03	3.0E+01	10.1	1.2	20.5
72Brm	10.6 s	2.7E+04	1.4E+03	2.4E+01	10.1	1.2	20.5
73Br	3.4 m	4.8E+05	3.1E+04	5.4E+02	9.8	1.2	19.9
74Br	25.4 m	1.4E+06	9.1E+04	1.6E+03	9.6	1.2	19.4
74Brm	46 m	1.4E+06	9.1E+04	1.6E+03	9.6	1.2	19.4
75Br	96.7 m	1.2E+07	7.8E+05	1.4E+04	9.3	1.2	18.9
76Br	16.2 h	1.8E+07	1.1E+06	2.0E+04	9.1	1.2	18.4
76Brm	1.31 s	1.8E+07	2.6E+05	4.4E+03	9.1	1.2	18.4
77Br	57.036 h	4.1E+07	2.7E+06	4.7E+04	8.8	1.2	17.9
77Brm	4.28 m	4.1E+07	2.7E+06	4.7E+04	8.8	1.2	17.9
78Br	6.46 m	1.5E+08	9.9E+06	1.7E+05	8.6	1.2	17.5
79Brm	4.86 s	1.2E+08	4.6E+06	8.0E+04	8.4	1.2	17.1
80Br	17.68 m	1.6E+08	1.1E+07	1.9E+05	8.2	1.2	16.6
80Brm	4.4205 h	1.6E+08	1.1E+07	1.9E+05	8.2	1.2	16.6
82Br	35.282 h	1.9E+08	1.3E+07	2.3E+05	7.8	1.2	15.8
82Brm	6.13 m	1.9E+08	1.3E+07	2.2E+05	7.8	1.2	15.8
83Br	2.4 h	3.3E+08	2.2E+07	3.9E+05	7.6	1.2	15.5
84Br	31.8 m	1.2E+08	7.9E+06	1.4E+05	7.4	1.2	15.1
84Brm	6 m	1.2E+08	7.8E+06	1.4E+05	7.4	1.2	15.1
85Br	2.9 m	1.3E+08	8.8E+06	1.5E+05	7.3	1.2	14.8
72Kr	17.16 s	4.6E+01	1.9E+00	3.2E-02	10.1	1.2	20.5
73Kr	28.6 s	7.7E+02	3.5E+01	5.8E-01	9.8	1.2	19.9
74Kr	11.5 m	1.1E+04	6.6E+02	1.1E+01	9.6	1.2	19.4
75Kr	4.29 m	1.0E+05	5.7E+03	9.5E+01	9.3	1.2	18.9
76Kr	14.8 h	6.4E+05	4.2E+04	6.9E+02	9.1	1.2	18.4
77Kr	74.4 m	2.9E+06	1.9E+05	3.1E+03	8.8	1.2	17.9
79Kr	35.04 h	1.5E+07	9.6E+05	1.6E+04	8.4	1.2	17.1
79Krm	50 s	1.5E+07	7.4E+05	1.2E+04	8.4	1.2	17.1
81Kr	229 ky	7.5E+07	5.1E+06	8.4E+04	8.0	1.2	16.2
81Krm	13.1 s	7.5E+07	3.1E+06	5.2E+04	8.0	1.2	16.2
83Krn	1.83 h	2.7E+08	1.8E+07	2.9E+05	7.6	1.2	15.5
85Kr	10.776 y	5.5E+08	3.8E+07	6.2E+05	7.3	1.2	14.8
85Krm	4.48 h	5.5E+08	3.7E+07	6.1E+05	7.3	1.2	14.8

Target fragmentation

The use of target fragmentation permits producing higher yields for isotopes with A>~20, and in certain cases eases the release of the radioactive atoms from the target to the ion source. So far, only graphite targets were used at SPIRAL. The new targets have therefore to be developed and tested before being considered as part of the routine operation of SPIRAL. Such types of developments will be carried out as part of the Beamlab activities in ENSAR2 (2016-…).

12C (95 AMeV 2E13pps) on SiC

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	8.4E+09	3.3E+07	5.3E+06	7.4	1.8	24.9
8He	119 ms	9.9E+07	3.6E+05	5.6E+04	4.2	1.2	16.5
8Li	840.3 ms	1.1E+10	8.4E+08	3.3E+06	16.6	1.2	24.9
9Li	178.3 ms	1.6E+09	9.7E+07	3.7E+05	13.1	1.2	24.9
11Li	8.75 ms	1.2E+06	1.2E+04	2.7E+01	8.8	1.2	19.7
7Be	53.22 d	3.8E+10	2.9E+08	1.2E+06	21.6	1.4	24.9
10Be	1.51 My	1.4E+10	1.4E+08	5.5E+05	10.7	1.2	24.8
11Be	13.81 s	2.9E+08	3.2E+06	1.3E+04	8.8	1.2	24.9
12Be	21.5 ms	2.9E+07	8.1E+04	2.5E+02	7.4	1.2	24.9
14Be	4.35 ms	1.1E+05	8.5E+01	1.4E-01	5.4	1.2	21.6
13N	9.965 m	5.3E+09	8.6E+05	3.4E+03	14.2	1.2	24.8
16N	7.13 s	3.9E+09	1.0E+03	4.1E+00	9.4	1.2	24.8
17N	4.173 s	8.1E+08	1.0E+02	4.0E-01	8.3	1.2	22.9
13O	8.58 ms	6.7E+07	1.2E+03	1.9E+00	24.9	1.6	24.9
14O	70.598 s	8.8E+08	8.0E+06	3.2E+04	21.6	1.4	24.8
15O	122.24 s	5.4E+09	5.8E+07	2.3E+05	18.9	1.2	24.8
19O	26.464 s	1.2E+09	1.1E+07	4.3E+04	11.8	1.2	24.8
20O	13.51 s	1.6E+08	1.2E+06	4.9E+03	10.7	1.2	23.8
21O	3.42 s	1.5E+07	7.3E+04	2.9E+02	9.7	1.2	21.6
22O	2.25 s	1.1E+06	4.5E+03	1.8E+01	8.8	1.2	19.7
23O	90 ms	7.1E+03	4.1E+00	1.4E-02	8.1	1.2	18.1
17F	64.49 s	5.4E+09	7.7E+07	3.1E+05	14.7	1.2	24.8
18F	109.771 m	1.5E+10	2.4E+08	9.5E+05	13.2	1.2	24.8
20F	11.163 s	6.5E+09	9.0E+07	3.6E+05	10.7	1.2	23.8
21F	4.158 s	1.5E+09	1.6E+07	6.3E+04	9.7	1.2	21.6
22F	4.23 s	2.2E+08	2.6E+06	1.0E+04	8.8	1.2	19.7
23F	2.23 s	2.1E+07	1.7E+05	6.9E+02	8.1	1.2	18.1
24F	400 ms	2.3E+05	3.3E+02	1.3E+00	7.4	1.2	16.6
17Ne	109.2 ms	5.7E+07	6.8E+03	9.0E+01	22.9	1.2	24.8
18Ne	1.672 s	8.1E+08	5.8E+06	8.7E+04	20.5	1.2	24.8
19Ne	17.296 s	5.6E+09	8.8E+07	1.3E+06	18.4	1.2	24.8
23Ne	37.24 s	1.8E+09	4.1E+07	6.1E+05	12.6	1.2	24.8
24Ne	3.38 m	2.7E+08	6.4E+06	9.7E+04	11.6	1.2	24.8
25Ne	602 ms	4.5E+06	1.6E+04	2.3E+02	10.7	1.2	24.8
26Ne	197 ms	2.7E+05	1.7E+02	2.3E+00	9.9	1.2	24.8
20Na	447.9 ms	8.0E+08	1.0E+07	1.1E+05	16.6	1.2	24.8
21Na	22.49 s	5.8E+09	6.5E+08	6.9E+06	15.1	1.2	24.8
22Na	2.6019 y	1.8E+10	2.1E+09	2.3E+07	13.8	1.2	24.8
24Na	14.959 h	4.5E+09	5.5E+08	5.8E+06	11.6	1.2	24.8
24Nam	20.2 ms	4.5E+09	1.0E+06	6.2E+03	11.6	1.2	24.8
25Na	59.1 s	2.0E+09	2.4E+08	2.5E+06	10.7	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
26Na	1.077 s	5.3E+07	1.9E+06	2.0E+04	9.9	1.2	24.8
27Na	301 ms	4.5E+06	3.9E+04	3.9E+02	9.2	1.2	23.3
20Mg	90 ms	3.0E+06	3.6E+03	3.1E+01	23.8	1.5	24.8
21Mg	122 ms	5.4E+07	8.9E+04	8.2E+02	21.6	1.4	24.8
22Mg	3.857 s	8.6E+08	1.9E+07	2.0E+05	19.7	1.2	24.8
23Mg	11.317 s	6.5E+09	2.1E+08	2.2E+06	18.1	1.2	24.8
27Mg	9.458 m	3.9E+08	1.8E+07	1.9E+05	13.2	1.2	24.8
28Mg	20.915 h	5.8E+07	2.8E+06	3.0E+04	12.2	1.2	24.8
22Al	59 ms	3.0E+06	6.9E+00	7.3E-02	19.7	1.2	24.8
23Al	470 ms	6.1E+07	1.7E+03	2.2E+01	18.1	1.2	24.8
24Al	2.053 s	5.2E+08	8.5E+04	1.2E+03	16.6	1.2	24.8
24Alm	131.3 ms	5.2E+08	3.5E+03	4.3E+01	16.6	1.2	24.8
25Al	7.183 s	7.8E+09	5.8E+06	7.9E+04	15.3	1.2	24.8
26Al	717 ky	1.4E+10	4.0E+08	5.5E+06	14.2	1.2	24.8
26Alm	6.3452 s	1.4E+10	9.8E+06	1.4E+05	14.2	1.2	24.8
28Al	2.2414 m	2.2E+09	3.3E+07	4.5E+05	12.2	1.2	24.8
29Al	6.56 m	5.8E+08	1.5E+07	2.0E+05	11.4	1.2	24.8

12C (95 AMeV 2E13pps) on CaO

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	6.0E+09	2.3E+07	3.7E+06	7.4	1.8	24.9
8He	119 ms	7.1E+07	2.6E+05	4.0E+04	4.2	1.2	16.5
8Li	840.3 ms	7.8E+09	6.0E+08	2.4E+06	16.6	1.2	24.9
9Li	178.3 ms	1.1E+09	6.8E+07	2.6E+05	13.1	1.2	24.9
11Li	8.75 ms	2.1E+06	2.0E+04	4.7E+01	8.8	1.2	19.7
7Be	53.22 d	2.7E+10	2.1E+08	8.4E+05	21.6	1.4	24.9
10Be	1.51 My	9.6E+09	9.8E+07	3.9E+05	10.7	1.2	24.8
11Be	13.81 s	4.8E+08	5.3E+06	2.1E+04	8.8	1.2	24.9
12Be	21.5 ms	4.9E+07	1.4E+05	4.3E+02	7.4	1.2	24.9
14Be	4.35 ms	5.0E+04	3.9E+01	6.5E-02	5.4	1.2	21.6
13N	9.965 m	1.0E+10	1.6E+06	6.5E+03	14.2	1.2	24.8
16N	7.13 s	1.7E+09	4.4E+02	1.7E+00	9.4	1.2	24.8
17N	4.173 s	3.6E+08	4.5E+01	1.8E-01	8.3	1.2	22.9
13O	8.58 ms	1.4E+08	2.4E+03	4.0E+00	24.9	1.6	24.9
14O	70.598 s	1.9E+09	1.8E+07	7.0E+04	21.6	1.4	24.8
15O	122.24 s	1.5E+10	1.6E+08	6.3E+05	18.9	1.2	24.8
19O	26.464 s	4.9E+08	4.7E+06	1.9E+04	11.8	1.2	24.8
20O	13.51 s	7.6E+07	5.9E+05	2.4E+03	10.7	1.2	23.8
21O	3.42 s	7.6E+06	3.6E+04	1.4E+02	9.7	1.2	21.6
22O	2.25 s	6.1E+05	2.6E+03	1.0E+01	8.8	1.2	19.7
23O	90 ms	3.7E+04	2.1E+01	7.4E-02	8.1	1.2	18.1
17F	64.49 s	2.2E+09	3.1E+07	1.2E+05	14.7	1.2	24.8
18F	109.771 m	6.2E+09	9.6E+07	3.8E+05	13.2	1.2	24.8
20F	11.163 s	2.8E+09	3.9E+07	1.6E+05	10.7	1.2	23.8
21F	4.158 s	6.9E+08	7.2E+06	2.9E+04	9.7	1.2	21.6
22F	4.23 s	1.2E+08	1.4E+06	5.4E+03	8.8	1.2	19.7
23F	2.23 s	1.3E+07	1.1E+05	4.3E+02	8.1	1.2	18.1
24F	400 ms	1.1E+06	1.6E+03	6.4E+00	7.4	1.2	16.6
25F	50 ms	7.3E+04	8.6E+00	2.8E-02	6.8	1.2	15.3
17Ne	109.2 ms	2.2E+07	2.7E+03	3.6E+01	22.9	1.2	24.8
18Ne	1.672 s	3.1E+08	2.3E+06	3.4E+04	20.5	1.2	24.8
19Ne	17.296 s	2.1E+09	3.4E+07	5.0E+05	18.4	1.2	24.8
23Ne	37.24 s	9.6E+08	2.2E+07	3.2E+05	12.6	1.2	24.8
24Ne	3.38 m	1.7E+08	4.2E+06	6.3E+04	11.6	1.2	24.8
25Ne	602 ms	2.2E+07	7.8E+04	1.1E+03	10.7	1.2	24.8
26Ne	197 ms	2.1E+06	1.3E+03	1.8E+01	9.9	1.2	24.8
27Ne	32 ms	1.5E+05	4.5E+00	4.5E-02	9.2	1.2	23.3
20Na	447.9 ms	2.9E+08	3.7E+06	3.8E+04	16.6	1.2	24.8
21Na	22.49 s	2.0E+09	2.3E+08	2.4E+06	15.1	1.2	24.8
22Na	2.6019 y	6.6E+09	7.8E+08	8.3E+06	13.8	1.2	24.8
24Na	14.959 h	2.3E+09	2.8E+08	3.0E+06	11.6	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
24Nam	20.2 ms	2.3E+09	5.2E+05	3.2E+03	11.6	1.2	24.8
25Na	59.1 s	1.4E+09	1.7E+08	1.8E+06	10.7	1.2	24.8
26Na	1.077 s	2.6E+08	9.6E+06	1.0E+05	9.9	1.2	24.8
27Na	301 ms	3.5E+07	3.0E+05	3.1E+03	9.2	1.2	23.3
28Na	30.5 ms	3.5E+06	1.4E+03	1.0E+01	8.5	1.2	21.6
29Na	44.9 ms	2.7E+05	1.9E+02	1.5E+00	7.9	1.2	20.2
30Na	48.4 ms	1.7E+04	1.3E+01	1.1E-01	7.4	1.2	18.9
20Mg	90 ms	1.0E+06	1.2E+03	1.1E+01	23.8	1.5	24.8
21Mg	122 ms	1.7E+07	2.8E+04	2.6E+02	21.6	1.4	24.8
22Mg	3.857 s	2.6E+08	5.6E+06	5.9E+04	19.7	1.2	24.8
23Mg	11.317 s	1.9E+09	6.0E+07	6.3E+05	18.1	1.2	24.8
27Mg	9.458 m	1.9E+09	8.6E+07	9.1E+05	13.2	1.2	24.8
28Mg	20.915 h	3.8E+08	1.8E+07	1.9E+05	12.2	1.2	24.8
29Mg	1.3 s	5.4E+07	8.7E+05	9.1E+03	11.4	1.2	24.8
30Mg	335 ms	5.5E+06	3.3E+04	3.3E+02	10.7	1.2	23.8
31Mg	230 ms	4.4E+05	2.0E+03	1.9E+01	10.0	1.2	22.3
32Mg	95 ms	3.1E+04	6.3E+01	5.6E-01	9.4	1.2	21.0
33Mg	90.5 ms	1.7E+03	3.3E+00	2.9E-02	8.8	1.2	19.7
23Al	470 ms	1.4E+07	3.9E+02	5.2E+00	18.1	1.2	24.8
24Al	2.053 s	1.2E+08	1.9E+04	2.6E+02	16.6	1.2	24.8
24Alm	131.3 ms	1.2E+08	7.8E+02	9.5E+00	16.6	1.2	24.8
25Al	7.183 s	1.8E+09	1.3E+06	1.9E+04	15.3	1.2	24.8
26Al	717 ky	3.4E+09	9.5E+07	1.3E+06	14.2	1.2	24.8
26Alm	6.3452 s	3.4E+09	2.3E+06	3.2E+04	14.2	1.2	24.8
28Al	2.2414 m	6.9E+09	1.0E+08	1.4E+06	12.2	1.2	24.8
29Al	6.56 m	2.4E+09	6.0E+07	8.3E+05	11.4	1.2	24.8
30Al	3.6 s	5.1E+08	2.3E+05	3.2E+03	10.7	1.2	23.9
31Al	644 ms	7.3E+07	4.7E+03	6.3E+01	10.0	1.2	22.4
32Al	31.7 ms	7.8E+06	1.6E+01	1.4E-01	9.4	1.2	21.0
27P	260 ms	1.1E+07	4.9E+01	7.7E-01	17.9	1.5	24.8
28P	270.3 ms	2.0E+08	9.6E+02	1.5E+01	16.6	1.4	24.8
29P	4.142 s	1.8E+09	4.8E+04	8.2E+02	15.5	1.3	24.8
30P	2.498 m	7.4E+09	1.9E+06	3.2E+04	14.5	1.2	24.8
32P	14.263 d	9.6E+09	2.4E+08	4.1E+06	12.8	1.2	24.8
33P	25.34 d	3.3E+09	9.6E+07	1.6E+06	12.0	1.2	24.3
34P	12.43 s	7.1E+08	4.9E+04	8.3E+02	11.3	1.2	22.9
35P	47.3 s	1.0E+08	1.7E+04	2.8E+02	10.7	1.2	21.7
36P	5.6 s	4.6E+06	2.1E+02	3.6E+00	10.1	1.2	20.5
37P	2.31 s	1.1E+06	3.2E+01	5.3E-01	9.6	1.2	19.4
38P	640 ms	2.7E+05	3.5E+00	5.8E-02	9.1	1.2	18.4
31Cl	150 ms	1.1E+07	7.1E+03	1.1E+02	17.7	1.2	24.8
32Cl	298 ms	2.2E+08	3.6E+05	6.2E+03	16.6	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
33Cl	2.511 s	2.1E+09	3.4E+07	6.3E+05	15.6	1.2	24.8
34Cl	1.5264 s	4.7E+09	5.1E+07	9.4E+05	14.7	1.2	24.8
34Clm	32 m	4.7E+09	2.0E+08	3.7E+06	14.7	1.2	24.8
36Cl	301 ky	1.1E+10	5.1E+08	9.5E+06	13.2	1.2	24.8
38Cl	37.24 m	7.2E+07	3.6E+06	6.6E+04	11.8	1.2	24.8
38Clm	715 ms	7.2E+07	4.2E+05	7.5E+03	11.8	1.2	24.8
39Cl	55.6 m	5.6E+07	2.9E+06	5.3E+04	11.2	1.2	24.8
40Cl	1.35 m	1.8E+07	9.6E+05	1.8E+04	10.7	1.2	23.9
41Cl	38.4 s	6.3E+06	3.2E+05	6.0E+03	10.2	1.2	22.7
42Cl	6.8 s	2.0E+06	7.5E+04	1.4E+03	9.7	1.2	21.7
43Cl	3.07 s	7.7E+05	1.9E+04	3.5E+02	9.2	1.2	20.7
44Cl	560 ms	2.6E+05	1.3E+03	2.3E+01	8.8	1.2	19.8
45Cl	400 ms	6.8E+04	2.2E+02	3.9E+00	8.4	1.2	18.9
31Ar	14.4 ms	2.2E+04	4.4E+01	6.2E-01	17.7	1.2	24.8
32Ar	98 ms	5.2E+05	5.3E+03	1.6E+02	16.6	1.2	24.8
33Ar	173 ms	1.3E+07	2.0E+05	6.6E+03	15.6	1.2	24.8
34Ar	845 ms	2.8E+08	8.9E+06	3.3E+05	14.7	1.2	24.8
35Ar	1.775 s	2.7E+09	1.0E+08	3.9E+06	13.9	1.2	24.8
37Ar	35.04 d	2.2E+10	1.1E+09	4.0E+07	12.5	1.2	24.8
39Ar	269 y	4.2E+08	2.1E+07	8.1E+05	11.2	1.2	24.8
41Ar	109.61 m	1.0E+08	5.5E+06	2.1E+05	10.2	1.2	22.7
42Ar	32.9 y	4.1E+07	2.2E+06	8.3E+04	9.7	1.2	21.7
43Ar	5.37 m	1.1E+07	6.1E+05	2.3E+04	9.2	1.2	20.7
44Ar	11.87 m	6.2E+06	3.4E+05	1.3E+04	8.8	1.2	19.8
45Ar	21.48 s	3.1E+06	1.7E+05	6.3E+03	8.4	1.2	18.9
46Ar	8.4 s	1.2E+06	6.5E+04	2.5E+03	8.1	1.2	18.1
35K	178 ms	1.8E+07	1.3E+06	2.6E+04	13.9	1.2	24.8
36K	342 ms	3.8E+08	4.0E+07	8.8E+05	13.2	1.2	24.8
37K	1.226 s	4.1E+09	7.4E+08	1.7E+07	12.5	1.2	24.8
38K	7.636 m	1.2E+10	3.1E+09	7.2E+07	11.8	1.2	24.8
38Kxm	923.9 ms	1.2E+10	2.0E+09	4.5E+07	11.8	1.2	24.8
40K	1.251 Gy	5.7E+08	1.5E+08	3.5E+06	10.7	1.2	23.9
42K	12.36 h	5.2E+08	1.3E+08	3.1E+06	9.7	1.2	21.7
43K	22.3 h	3.0E+08	7.7E+07	1.8E+06	9.2	1.2	20.7
44K	22.13 m	3.3E+07	8.6E+06	2.0E+05	8.8	1.2	19.8
45K	17.3 m	3.3E+07	8.6E+06	2.0E+05	8.4	1.2	18.9
46K	105 s	2.8E+07	7.2E+06	1.7E+05	8.1	1.2	18.1
47K	17.5 s	1.8E+07	4.7E+06	1.1E+05	7.7	1.2	17.3

12C (95 AMeV 2E13pps) on NiO

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	5.1E+09	2.0E+07	3.2E+06	7.4	1.8	24.9
8He	119 ms	6.0E+07	2.2E+05	3.4E+04	4.2	1.2	16.5
8Li	840.3 ms	6.6E+09	5.1E+08	2.0E+06	16.6	1.2	24.9
9Li	178.3 ms	9.6E+08	5.8E+07	2.3E+05	13.1	1.2	24.9
11Li	8.75 ms	1.5E+06	1.4E+04	3.4E+01	8.8	1.2	19.7
7Be	53.22 d	2.3E+10	1.8E+08	7.1E+05	21.6	1.4	24.9
10Be	1.51 My	8.2E+09	8.3E+07	3.3E+05	10.7	1.2	24.8
11Be	13.81 s	3.6E+08	3.9E+06	1.6E+04	8.8	1.2	24.9
12Be	21.5 ms	3.6E+07	1.0E+05	3.1E+02	7.4	1.2	24.9
14Be	4.35 ms	2.1E+04	1.7E+01	2.8E-02	5.4	1.2	21.6
13N	9.965 m	7.6E+09	1.2E+06	4.9E+03	14.2	1.2	24.8
16N	7.13 s	6.8E+08	1.8E+02	7.1E-01	9.4	1.2	24.8
17N	4.173 s	1.5E+08	1.9E+01	7.5E-02	8.3	1.2	22.9
13O	8.58 ms	1.0E+08	1.8E+03	3.0E+00	24.9	1.6	24.9
14O	70.598 s	1.4E+09	1.3E+07	5.3E+04	21.6	1.4	24.8
15O	122.24 s	1.1E+10	1.2E+08	4.9E+05	18.9	1.2	24.8
19O	26.464 s	1.9E+08	1.8E+06	7.3E+03	11.8	1.2	24.8
20O	13.51 s	2.9E+07	2.3E+05	9.2E+02	10.7	1.2	23.8
21O	3.42 s	3.2E+06	1.5E+04	6.0E+01	9.7	1.2	21.6
22O	2.25 s	2.5E+05	1.0E+03	4.2E+00	8.8	1.2	19.7
23O	90 ms	1.5E+04	8.5E+00	3.0E-02	8.1	1.2	18.1
17F	64.49 s	8.6E+08	1.2E+07	4.9E+04	14.7	1.2	24.8
18F	109.771 m	2.4E+09	3.8E+07	1.5E+05	13.2	1.2	24.8
20F	11.163 s	1.1E+09	1.5E+07	6.0E+04	10.7	1.2	23.8
21F	4.158 s	2.8E+08	2.9E+06	1.2E+04	9.7	1.2	21.6
22F	4.23 s	4.6E+07	5.3E+05	2.1E+03	8.8	1.2	19.7
23F	2.23 s	5.4E+06	4.4E+04	1.7E+02	8.1	1.2	18.1
24F	400 ms	4.7E+05	6.8E+02	2.7E+00	7.4	1.2	16.6
25F	50 ms	3.1E+04	3.7E+00	1.2E-02	6.8	1.2	15.3
17Ne	109.2 ms	8.6E+06	1.0E+03	1.4E+01	22.9	1.2	24.8
18Ne	1.672 s	1.2E+08	8.7E+05	1.3E+04	20.5	1.2	24.8
19Ne	17.296 s	7.9E+08	1.3E+07	1.9E+05	18.4	1.2	24.8
23Ne	37.24 s	3.9E+08	8.8E+06	1.3E+05	12.6	1.2	24.8
24Ne	3.38 m	7.2E+07	1.7E+06	2.6E+04	11.6	1.2	24.8
25Ne	602 ms	9.4E+06	3.3E+04	4.8E+02	10.7	1.2	24.8
26Ne	197 ms	8.7E+05	5.4E+02	7.5E+00	9.9	1.2	24.8
20Na	447.9 ms	1.1E+08	1.4E+06	1.4E+04	16.6	1.2	24.8
21Na	22.49 s	7.8E+08	8.7E+07	9.3E+05	15.1	1.2	24.8
22Na	2.6019 y	2.5E+09	2.9E+08	3.1E+06	13.8	1.2	24.8
24Na	14.959 h	9.0E+08	1.1E+08	1.2E+06	11.6	1.2	24.8
24Nam	20.2 ms	9.0E+08	2.0E+05	1.2E+03	11.6	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
25Na	59.1 s	5.5E+08	6.7E+07	7.1E+05	10.7	1.2	24.8
26Na	1.077 s	1.1E+08	4.0E+06	4.2E+04	9.9	1.2	24.8
27Na	301 ms	1.6E+07	1.4E+05	1.4E+03	9.2	1.2	23.3
28Na	30.5 ms	1.7E+06	6.9E+02	4.9E+00	8.5	1.2	21.6
29Na	44.9 ms	1.3E+05	9.4E+01	7.5E-01	7.9	1.2	20.2
30Na	48.4 ms	8.8E+03	7.0E+00	5.7E-02	7.4	1.2	18.9
20Mg	90 ms	3.8E+05	4.6E+02	4.0E+00	23.8	1.5	24.8
21Mg	122 ms	6.1E+06	1.0E+04	9.4E+01	21.6	1.4	24.8
22Mg	3.857 s	9.4E+07	2.0E+06	2.2E+04	19.7	1.2	24.8
23Mg	11.317 s	7.0E+08	2.2E+07	2.3E+05	18.1	1.2	24.8
27Mg	9.458 m	7.8E+08	3.6E+07	3.8E+05	13.2	1.2	24.8
28Mg	20.915 h	1.7E+08	8.0E+06	8.5E+04	12.2	1.2	24.8
29Mg	1.3 s	2.6E+07	4.2E+05	4.4E+03	11.4	1.2	24.8
30Mg	335 ms	3.1E+06	1.8E+04	1.8E+02	10.7	1.2	23.8
31Mg	230 ms	2.7E+05	1.2E+03	1.2E+01	10.0	1.2	22.3
32Mg	95 ms	1.9E+04	3.9E+01	3.5E-01	9.4	1.2	21.0
23Al	470 ms	5.0E+06	1.4E+02	1.8E+00	18.1	1.2	24.8
24Al	2.053 s	3.9E+07	6.4E+03	8.8E+01	16.6	1.2	24.8
24Alm	131.3 ms	3.9E+07	2.7E+02	3.2E+00	16.6	1.2	24.8
25Al	7.183 s	6.3E+08	4.7E+05	6.4E+03	15.3	1.2	24.8
26Al	717 ky	1.2E+09	3.4E+07	4.6E+05	14.2	1.2	24.8
26Alm	6.3452 s	1.2E+09	8.2E+05	1.1E+04	14.2	1.2	24.8
28Al	2.2414 m	2.9E+09	4.2E+07	5.8E+05	12.2	1.2	24.8
29Al	6.56 m	1.1E+09	2.7E+07	3.7E+05	11.4	1.2	24.8
30Al	3.6 s	2.5E+08	1.1E+05	1.6E+03	10.7	1.2	23.9
31Al	644 ms	4.3E+07	2.8E+03	3.8E+01	10.0	1.2	22.4
32Al	31.7 ms	5.6E+06	1.2E+01	1.0E-01	9.4	1.2	21.0
27P	260 ms	3.1E+06	1.4E+01	2.2E-01	17.9	1.5	24.8
28P	270.3 ms	5.4E+07	2.7E+02	4.2E+00	16.6	1.4	24.8
29P	4.142 s	4.9E+08	1.4E+04	2.3E+02	15.5	1.3	24.8
30P	2.498 m	2.2E+09	5.6E+05	9.5E+03	14.5	1.2	24.8
32P	14.263 d	4.3E+09	1.1E+08	1.8E+06	12.8	1.2	24.8
33P	25.34 d	1.9E+09	5.6E+07	9.5E+05	12.0	1.2	24.3
34P	12.43 s	5.6E+08	3.8E+04	6.4E+02	11.3	1.2	22.9
35P	47.3 s	1.1E+08	1.8E+04	3.0E+02	10.7	1.2	21.7
36P	5.6 s	1.7E+07	7.8E+02	1.3E+01	10.1	1.2	20.5
37P	2.31 s	2.0E+06	5.6E+01	9.5E-01	9.6	1.2	19.4
38P	640 ms	1.9E+05	2.5E+00	4.1E-02	9.1	1.2	18.4
31Cl	150 ms	1.8E+06	1.2E+03	1.9E+01	17.7	1.2	24.8
32Cl	298 ms	3.4E+07	5.5E+04	9.5E+02	16.6	1.2	24.8
33Cl	2.511 s	3.6E+08	5.7E+06	1.1E+05	15.6	1.2	24.8
34Cl	1.5264 s	9.5E+08	1.0E+07	1.9E+05	14.7	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
34Clm	32 m	9.5E+08	4.0E+07	7.4E+05	14.7	1.2	24.8
36Cl	301 ky	6.0E+09	2.7E+08	5.1E+06	13.2	1.2	24.8
38Cl	37.24 m	5.6E+08	2.8E+07	5.1E+05	11.8	1.2	24.8
38Clm	715 ms	5.6E+08	3.2E+06	5.8E+04	11.8	1.2	24.8
39Cl	55.6 m	2.7E+08	1.4E+07	2.6E+05	11.2	1.2	24.8
40Cl	1.35 m	4.8E+07	2.5E+06	4.7E+04	10.7	1.2	23.9
41Cl	38.4 s	6.7E+06	3.4E+05	6.3E+03	10.2	1.2	22.7
42Cl	6.8 s	7.3E+05	2.8E+04	5.1E+02	9.7	1.2	21.7
43Cl	3.07 s	6.5E+04	1.6E+03	3.0E+01	9.2	1.2	20.7
44Cl	560 ms	4.7E+03	2.3E+01	4.1E-01	8.8	1.2	19.8
31Ar	14.4 ms	3.9E+03	7.6E+00	1.1E-01	17.7	1.2	24.8
32Ar	98 ms	7.0E+04	7.2E+02	2.2E+01	16.6	1.2	24.8
33Ar	173 ms	1.3E+06	2.1E+04	6.9E+02	15.6	1.2	24.8
34Ar	845 ms	2.6E+07	8.3E+05	3.0E+04	14.7	1.2	24.8
35Ar	1.775 s	3.0E+08	1.1E+07	4.2E+05	13.9	1.2	24.8
37Ar	35.04 d	4.9E+09	2.3E+08	8.9E+06	12.5	1.2	24.8
39Ar	269 y	4.1E+09	2.1E+08	8.0E+06	11.2	1.2	24.8
41Ar	109.61 m	4.0E+08	2.1E+07	8.1E+05	10.2	1.2	22.7
42Ar	32.9 y	7.7E+07	4.1E+06	1.6E+05	9.7	1.2	21.7
43Ar	5.37 m	1.1E+07	6.2E+05	2.3E+04	9.2	1.2	20.7
44Ar	11.87 m	1.3E+06	7.1E+04	2.7E+03	8.8	1.2	19.8
45Ar	21.48 s	1.2E+05	6.7E+03	2.5E+02	8.4	1.2	18.9
46Ar	8.4 s	9.8E+03	5.2E+02	2.0E+01	8.1	1.2	18.1
47Ar	580 ms	6.7E+02	2.5E+01	9.1E-01	7.7	1.2	17.3
35K	178 ms	9.8E+05	6.9E+04	1.4E+03	13.9	1.2	24.8
36K	342 ms	2.0E+07	2.1E+06	4.6E+04	13.2	1.2	24.8
37K	1.226 s	2.5E+08	4.4E+07	1.0E+06	12.5	1.2	24.8
38K	7.636 m	7.6E+08	2.0E+08	4.6E+06	11.8	1.2	24.8
38Kxm	923.9 ms	7.6E+08	1.2E+08	2.8E+06	11.8	1.2	24.8
40K	1.251 Gy	7.7E+09	2.0E+09	4.7E+07	10.7	1.2	23.9
42K	12.36 h	2.1E+09	5.4E+08	1.3E+07	9.7	1.2	21.7
43K	22.3 h	5.7E+08	1.5E+08	3.5E+06	9.2	1.2	20.7
44K	22.13 m	1.1E+08	3.0E+07	7.0E+05	8.8	1.2	19.8
45K	17.3 m	1.8E+07	4.8E+06	1.1E+05	8.4	1.2	18.9
46K	105 s	2.3E+06	5.9E+05	1.4E+04	8.1	1.2	18.1
47K	17.5 s	2.3E+05	5.8E+04	1.3E+03	7.7	1.2	17.3
48K	6.8 s	1.9E+04	4.7E+03	1.1E+02	7.4	1.2	16.6
49K	1.26 s	1.5E+03	2.8E+02	6.4E+00	7.1	1.2	16.0
50K	472 ms	8.5E+01	1.1E+01	2.4E-01	6.8	1.2	15.3
37Ca	181.1 ms	7.4E+05	4.0E+00	8.2E-02	15.7	1.2	24.8
38Ca	440 ms	1.5E+07	4.4E+02	9.6E+00	14.9	1.2	24.8
39Ca	859.6 ms	2.0E+08	2.0E+04	4.5E+02	14.2	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
41Ca	102 ky	4.8E+09	4.2E+08	9.9E+06	12.8	1.2	24.8
45Ca	162.67 d	7.9E+08	7.2E+07	1.7E+06	10.7	1.2	22.1
47Ca	4.536 d	2.8E+07	2.5E+06	5.9E+04	9.8	1.2	20.3
48Ca	53 Ey	3.7E+06	3.3E+05	7.8E+03	9.4	1.2	19.5
49Ca	8.718 m	4.1E+05	3.7E+04	8.6E+02	9.0	1.2	18.7
50Ca	13.9 s	3.9E+04	5.5E+02	1.3E+01	8.7	1.2	18.0
51Ca	10 s	2.7E+03	2.3E+01	5.3E-01	8.3	1.2	17.3
40Sc	182.3 ms	1.2E+07	2.0E+03	4.1E+01	13.5	1.2	24.8
41Sc	596.3 ms	1.7E+08	9.6E+04	2.1E+03	12.8	1.2	24.8
42Sc	681.3 ms	6.4E+08	4.1E+05	9.2E+03	12.2	1.2	24.8
42Scm	61.7 s	6.4E+08	1.8E+07	4.2E+05	12.2	1.2	24.8
43Sc	3.891 h	4.6E+09	2.5E+08	5.8E+06	11.7	1.2	24.2
44Sc	3.97 h	4.2E+09	2.3E+08	5.3E+06	11.2	1.2	23.2
44Scm	58.61 h	4.2E+09	2.3E+08	5.3E+06	11.2	1.2	23.2
45Scm	318 ms	3.7E+09	1.1E+06	2.4E+04	10.7	1.2	22.1
46Sc	83.79 d	1.7E+09	9.2E+07	2.2E+06	10.2	1.2	21.2
46Scm	18.75 s	1.7E+09	2.3E+07	5.4E+05	10.2	1.2	21.2
47Sc	3.3492 d	1.0E+09	5.6E+07	1.3E+06	9.8	1.2	20.3
48Sc	43.67 h	2.3E+08	1.3E+07	3.1E+05	9.4	1.2	19.5
49Sc	57.2 m	4.2E+07	2.3E+06	5.4E+04	9.0	1.2	18.7
50Sc	102.5 s	3.0E+06	1.1E+05	2.5E+03	8.7	1.2	18.0
50Scm	350 ms	3.0E+06	1.0E+03	2.3E+01	8.7	1.2	18.0
51Sc	12.4 s	7.2E+05	7.4E+03	1.7E+02	8.3	1.2	17.3
52Sc	8.2 s	6.1E+04	4.4E+02	1.0E+01	8.0	1.2	16.6
47Cr	500 ms	1.3E+08	1.4E+01	3.0E-01	12.1	1.2	24.8
48Cr	21.56 h	1.1E+09	6.1E+07	1.4E+06	11.6	1.2	24.8
49Cr	42.3 m	4.8E+09	1.1E+08	2.6E+06	11.1	1.2	24.8
51Cr	27.7025 d	1.1E+10	6.0E+08	1.4E+07	10.3	1.2	22.9
55Cr	3.497 m	9.5E+07	9.2E+04	2.1E+03	8.8	1.2	19.8
56Cr	5.94 m	1.9E+07	4.0E+04	9.3E+02	8.5	1.2	19.1
57Cr	21.1 s	2.7E+06	8.7E+01	2.0E+00	8.2	1.2	18.4
58Cr	7 s	5.7E+05	3.5E+00	8.1E-02	7.9	1.2	17.8
47Mn	100 ms	2.6E+05	4.4E+02	7.0E+00	14.6	1.2	24.8
48Mn	158.1 ms	6.8E+06	2.3E+04	4.0E+02	14.0	1.2	24.8
49Mn	382 ms	1.3E+08	1.4E+06	2.7E+04	13.4	1.2	24.8
50Mn	283.9 ms	5.6E+08	4.2E+06	7.9E+04	12.9	1.2	24.8
50Mnm	1.75 m	5.6E+08	3.2E+07	6.7E+05	12.9	1.2	24.8
51Mn	46.2 m	4.9E+09	2.8E+08	5.9E+06	12.4	1.2	24.8
52Mn	5.591 d	5.5E+09	3.1E+08	6.7E+06	11.9	1.2	24.8
52Mnm	21.1 m	5.5E+09	3.1E+08	6.7E+06	11.9	1.2	24.8
53Mn	3.7 My	1.2E+10	7.2E+08	1.5E+07	11.5	1.2	24.2
54Mn	312.03 d	7.6E+09	4.4E+08	9.3E+06	11.1	1.2	23.3

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
56Mn	2.5789 h	6.1E+08	3.6E+07	7.6E+05	10.3	1.2	21.7
57Mn	85.4 s	1.5E+08	9.0E+06	1.9E+05	9.9	1.2	20.9
58Mn	3 s	1.2E+07	6.1E+05	1.3E+04	9.6	1.2	20.2
58Mnm	65.2 s	1.2E+07	7.2E+05	1.5E+04	9.6	1.2	20.2
59Mn	4.59 s	6.3E+06	3.4E+05	7.2E+03	9.3	1.2	19.5
60Mn	51 s	6.7E+05	4.0E+04	8.5E+02	9.0	1.2	18.9
60Mnm	1.77 s	6.7E+05	2.8E+04	5.9E+02	9.0	1.2	18.9
61Mn	670 ms	2.3E+05	5.0E+03	1.0E+02	8.7	1.2	18.3
51Fe	305 ms	1.2E+08	6.2E+00	1.2E-01	12.4	1.2	24.8
52Fe	8.275 h	5.2E+08	2.9E+07	5.9E+05	11.9	1.2	24.8
52Fem	45.9 s	5.2E+08	5.1E+04	1.1E+03	11.9	1.2	24.8
53Fe	8.51 m	2.5E+09	8.7E+06	1.8E+05	11.5	1.2	24.2
53Fem	2.526 m	2.5E+09	1.5E+06	3.1E+04	11.5	1.2	24.2
55Fe	2.737 y	1.8E+10	1.1E+09	2.2E+07	10.7	1.2	22.5
59Fe	44.495 d	1.8E+08	1.1E+07	2.2E+05	9.3	1.2	19.5
60Fe	1.5 My	6.1E+07	3.6E+06	7.6E+04	9.0	1.2	18.9
61Fe	5.98 m	1.6E+07	3.4E+04	7.2E+02	8.7	1.2	18.3
62Fe	68 s	4.3E+06	8.0E+02	1.7E+01	8.4	1.2	17.7
54Co	193.23 ms	5.2E+08	1.4E+01	2.5E-01	11.1	1.2	23.3
54Com	1.48 m	5.2E+08	1.4E+05	2.9E+03	11.1	1.2	23.3
55Co	17.53 h	7.0E+09	4.0E+08	8.4E+06	10.7	1.2	22.5
56Co	77.23 d	2.4E+10	1.4E+09	2.9E+07	10.3	1.2	21.7
57Co	271.74 d	3.1E+10	1.8E+09	3.8E+07	9.9	1.2	20.9
58Co	70.86 d	4.9E+09	2.9E+08	6.0E+06	9.6	1.2	20.2
58Com	9.04 h	4.9E+09	2.8E+08	5.9E+06	9.6	1.2	20.2
60Co	5.2713 y	5.2E+08	3.2E+07	6.6E+05	9.0	1.2	18.9
60Com	10.467 m	5.2E+08	2.5E+06	5.3E+04	9.0	1.2	18.9
61Co	1.65 h	5.3E+08	2.3E+07	4.8E+05	8.7	1.2	18.3
62Co	1.5 m	7.1E+07	2.0E+04	4.2E+02	8.4	1.2	17.7
62Com	13.91 m	7.1E+07	5.1E+05	1.1E+04	8.4	1.2	17.7
63Co	26.9 s	7.1E+07	3.4E+03	7.0E+01	8.2	1.2	17.2

12C (95 AMeV 2E13pps) on Nb

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
6He	806.7 ms	2.7E+09	1.1E+07	1.7E+06	7.4	1.8	24.9
8He	119 ms	3.2E+07	1.2E+05	1.8E+04	4.2	1.2	16.5
8Li	840.3 ms	3.5E+09	2.7E+08	1.1E+06	16.6	1.2	24.9
9Li	178.3 ms	5.0E+08	3.0E+07	1.2E+05	13.1	1.2	24.9
11Li	8.75 ms	8.8E+04	8.4E+02	2.0E+00	8.8	1.2	19.7
7Be	53.22 d	1.2E+10	9.2E+07	3.7E+05	21.6	1.4	24.9
10Be	1.51 My	4.2E+09	4.3E+07	1.7E+05	10.7	1.2	24.8
11Be	13.81 s	2.0E+07	2.2E+05	8.8E+02	8.8	1.2	24.9
12Be	21.5 ms	2.1E+06	5.9E+03	1.8E+01	7.4	1.2	24.9
14Be	4.35 ms	7.4E+03	5.8E+00	9.7E-03	5.4	1.2	21.6
13N	9.965 m	3.6E+08	5.8E+04	2.3E+02	14.2	1.2	24.8
16N	7.13 s	2.6E+08	6.8E+01	2.7E-01	9.4	1.2	24.8
17N	4.173 s	5.3E+07	6.6E+00	2.6E-02	8.3	1.2	22.9
13O	8.58 ms	4.5E+06	7.8E+01	1.3E-01	24.9	1.6	24.9
14O	70.598 s	5.8E+07	5.3E+05	2.1E+03	21.6	1.4	24.8
15O	122.24 s	3.5E+08	3.8E+06	1.5E+04	18.9	1.2	24.8
19O	26.464 s	7.3E+07	6.9E+05	2.8E+03	11.8	1.2	24.8
20O	13.51 s	1.1E+07	8.6E+04	3.4E+02	10.7	1.2	23.8
21O	3.42 s	1.2E+06	5.7E+03	2.3E+01	9.7	1.2	21.6
22O	2.25 s	9.0E+04	3.8E+02	1.5E+00	8.8	1.2	19.7
23O	90 ms	5.3E+03	3.0E+00	1.1E-02	8.1	1.2	18.1
17F	64.49 s	3.3E+08	4.7E+06	1.9E+04	14.7	1.2	24.8
18F	109.771 m	9.2E+08	1.4E+07	5.7E+04	13.2	1.2	24.8
20F	11.163 s	4.1E+08	5.7E+06	2.3E+04	10.7	1.2	23.8
21F	4.158 s	1.0E+08	1.0E+06	4.2E+03	9.7	1.2	21.6
22F	4.23 s	1.7E+07	2.0E+05	7.9E+02	8.8	1.2	19.7
23F	2.23 s	2.0E+06	1.6E+04	6.5E+01	8.1	1.2	18.1
24F	400 ms	1.7E+05	2.5E+02	9.6E-01	7.4	1.2	16.6
17Ne	109.2 ms	3.3E+06	4.0E+02	5.2E+00	22.9	1.2	24.8
18Ne	1.672 s	4.6E+07	3.3E+05	4.9E+03	20.5	1.2	24.8
19Ne	17.296 s	3.1E+08	4.9E+06	7.4E+04	18.4	1.2	24.8
23Ne	37.24 s	1.4E+08	3.1E+06	4.7E+04	12.6	1.2	24.8
24Ne	3.38 m	2.6E+07	6.3E+05	9.5E+03	11.6	1.2	24.8
25Ne	602 ms	3.3E+06	1.1E+04	1.7E+02	10.7	1.2	24.8
26Ne	197 ms	3.1E+05	1.9E+02	2.7E+00	9.9	1.2	24.8
20Na	447.9 ms	4.0E+07	5.1E+05	5.3E+03	16.6	1.2	24.8
21Na	22.49 s	2.8E+08	3.1E+07	3.3E+05	15.1	1.2	24.8
22Na	2.6019 y	9.0E+08	1.1E+08	1.1E+06	13.8	1.2	24.8
24Na	14.959 h	3.3E+08	4.0E+07	4.2E+05	11.6	1.2	24.8
24Nam	20.2 ms	3.3E+08	7.3E+04	4.4E+02	11.6	1.2	24.8
25Na	59.1 s	2.0E+08	2.4E+07	2.6E+05	10.7	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
26Na	1.077 s	3.9E+07	1.4E+06	1.5E+04	9.9	1.2	24.8
27Na	301 ms	5.5E+06	4.7E+04	4.8E+02	9.2	1.2	23.3
28Na	30.5 ms	5.8E+05	2.4E+02	1.7E+00	8.5	1.2	21.6
29Na	44.9 ms	4.7E+04	3.3E+01	2.6E-01	7.9	1.2	20.2
20Mg	90 ms	1.4E+05	1.7E+02	1.5E+00	23.8	1.5	24.8
21Mg	122 ms	2.2E+06	3.6E+03	3.4E+01	21.6	1.4	24.8
22Mg	3.857 s	3.4E+07	7.4E+05	7.8E+03	19.7	1.2	24.8
23Mg	11.317 s	2.5E+08	7.8E+06	8.3E+04	18.1	1.2	24.8
27Mg	9.458 m	2.7E+08	1.2E+07	1.3E+05	13.2	1.2	24.8
28Mg	20.915 h	5.8E+07	2.8E+06	3.0E+04	12.2	1.2	24.8
29Mg	1.3 s	9.1E+06	1.5E+05	1.5E+03	11.4	1.2	24.8
30Mg	335 ms	1.1E+06	6.5E+03	6.6E+01	10.7	1.2	23.8
31Mg	230 ms	9.4E+04	4.1E+02	4.1E+00	10.0	1.2	22.3
32Mg	95 ms	6.7E+03	1.4E+01	1.2E-01	9.4	1.2	21.0
23Al	470 ms	1.8E+06	5.0E+01	6.6E-01	18.1	1.2	24.8
24Al	2.053 s	1.4E+07	2.3E+03	3.1E+01	16.6	1.2	24.8
24Alm	131.3 ms	1.4E+07	9.5E+01	1.2E+00	16.6	1.2	24.8
25Al	7.183 s	2.2E+08	1.6E+05	2.2E+03	15.3	1.2	24.8
26Al	717 ky	4.2E+08	1.2E+07	1.6E+05	14.2	1.2	24.8
26Alm	6.3452 s	4.2E+08	2.8E+05	3.9E+03	14.2	1.2	24.8
28Al	2.2414 m	9.9E+08	1.4E+07	2.0E+05	12.2	1.2	24.8
29Al	6.56 m	3.6E+08	9.0E+06	1.2E+05	11.4	1.2	24.8
30Al	3.6 s	8.7E+07	3.9E+04	5.4E+02	10.7	1.2	23.9
31Al	644 ms	1.5E+07	9.8E+02	1.3E+01	10.0	1.2	22.4
32Al	31.7 ms	1.9E+06	4.0E+00	3.5E-02	9.4	1.2	21.0
27P	260 ms	1.0E+06	4.5E+00	7.1E-02	17.9	1.5	24.8
28P	270.3 ms	1.8E+07	8.9E+01	1.4E+00	16.6	1.4	24.8
29P	4.142 s	1.6E+08	4.4E+03	7.4E+01	15.5	1.3	24.8
30P	2.498 m	7.2E+08	1.8E+05	3.1E+03	14.5	1.2	24.8
32P	14.263 d	1.4E+09	3.5E+07	5.9E+05	12.8	1.2	24.8
33P	25.34 d	6.4E+08	1.9E+07	3.2E+05	12.0	1.2	24.3
34P	12.43 s	1.9E+08	1.3E+04	2.2E+02	11.3	1.2	22.9
35P	47.3 s	3.8E+07	6.1E+03	1.0E+02	10.7	1.2	21.7
36P	5.6 s	6.0E+06	2.7E+02	4.6E+00	10.1	1.2	20.5
37P	2.31 s	7.2E+05	2.0E+01	3.3E-01	9.6	1.2	19.4
31Cl	150 ms	5.5E+05	3.6E+02	5.8E+00	17.7	1.2	24.8
32Cl	298 ms	1.0E+07	1.6E+04	2.8E+02	16.6	1.2	24.8
33Cl	2.511 s	1.1E+08	1.8E+06	3.3E+04	15.6	1.2	24.8
34Cl	1.5264 s	2.9E+08	3.1E+06	5.7E+04	14.7	1.2	24.8
34Clm	32 m	2.9E+08	1.2E+07	2.2E+05	14.7	1.2	24.8
36Cl	301 ky	1.9E+09	8.7E+07	1.6E+06	13.2	1.2	24.8
38Cl	37.24 m	1.9E+08	9.4E+06	1.7E+05	11.8	1.2	24.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
38Clm	715 ms	1.9E+08	1.1E+06	2.0E+04	11.8	1.2	24.8
39Cl	55.6 m	9.4E+07	4.8E+06	9.0E+04	11.2	1.2	24.8
40Cl	1.35 m	1.8E+07	9.4E+05	1.7E+04	10.7	1.2	23.9
41Cl	38.4 s	2.6E+06	1.3E+05	2.5E+03	10.2	1.2	22.7
42Cl	6.8 s	3.0E+05	1.1E+04	2.1E+02	9.7	1.2	21.7
43Cl	3.07 s	2.8E+04	7.0E+02	1.3E+01	9.2	1.2	20.7
44Cl	560 ms	2.3E+03	1.1E+01	2.0E-01	8.8	1.2	19.8
31Ar	14.4 ms	1.2E+03	2.4E+00	3.4E-02	17.7	1.2	24.8
32Ar	98 ms	2.1E+04	2.2E+02	6.6E+00	16.6	1.2	24.8
33Ar	173 ms	3.9E+05	6.1E+03	2.0E+02	15.6	1.2	24.8
34Ar	845 ms	7.4E+06	2.3E+05	8.6E+03	14.7	1.2	24.8
35Ar	1.775 s	8.5E+07	3.2E+06	1.2E+05	13.9	1.2	24.8
37Ar	35.04 d	1.4E+09	6.7E+07	2.5E+06	12.5	1.2	24.8
39Ar	269 y	1.3E+09	6.7E+07	2.5E+06	11.2	1.2	24.8
41Ar	109.61 m	1.4E+08	7.5E+06	2.8E+05	10.2	1.2	22.7
42Ar	32.9 y	2.9E+07	1.6E+06	5.9E+04	9.7	1.2	21.7
43Ar	5.37 m	4.7E+06	2.5E+05	9.6E+03	9.2	1.2	20.7
44Ar	11.87 m	6.0E+05	3.3E+04	1.2E+03	8.8	1.2	19.8
45Ar	21.48 s	6.3E+04	3.4E+03	1.3E+02	8.4	1.2	18.9
46Ar	8.4 s	5.5E+03	2.9E+02	1.1E+01	8.1	1.2	18.1
47Ar	580 ms	4.1E+02	1.5E+01	5.6E-01	7.7	1.2	17.3
35K	178 ms	2.7E+05	1.9E+04	3.9E+02	13.9	1.2	24.8
36K	342 ms	5.3E+06	5.6E+05	1.2E+04	13.2	1.2	24.8
37K	1.226 s	6.6E+07	1.2E+07	2.7E+05	12.5	1.2	24.8
38K	7.636 m	2.1E+08	5.4E+07	1.3E+06	11.8	1.2	24.8
38Kxm	923.9 ms	2.1E+08	3.5E+07	7.9E+05	11.8	1.2	24.8
40K	1.251 Gy	2.2E+09	5.7E+08	1.3E+07	10.7	1.2	23.9
42K	12.36 h	7.1E+08	1.9E+08	4.3E+06	9.7	1.2	21.7
43K	22.3 h	2.2E+08	5.7E+07	1.3E+06	9.2	1.2	20.7
44K	22.13 m	4.8E+07	1.3E+07	2.9E+05	8.8	1.2	19.8
45K	17.3 m	8.5E+06	2.2E+06	5.2E+04	8.4	1.2	18.9
46K	105 s	1.2E+06	3.1E+05	7.3E+03	8.1	1.2	18.1
47K	17.5 s	1.4E+05	3.6E+04	8.3E+02	7.7	1.2	17.3
48K	6.8 s	1.3E+04	3.1E+03	7.3E+01	7.4	1.2	16.6
49K	1.26 s	1.1E+03	2.0E+02	4.7E+00	7.1	1.2	16.0
50K	472 ms	7.6E+01	9.7E+00	2.2E-01	6.8	1.2	15.3
38Ca	440 ms	3.7E+06	1.0E+02	2.3E+00	14.9	1.2	24.8
39Ca	859.6 ms	5.0E+07	4.9E+03	1.1E+02	14.2	1.2	24.8
41Ca	102 ky	1.2E+09	1.1E+08	2.5E+06	12.8	1.2	24.8
45Ca	162.67 d	3.2E+08	2.9E+07	6.7E+05	10.7	1.2	22.1
47Ca	4.536 d	1.5E+07	1.4E+06	3.2E+04	9.8	1.2	20.3
48Ca	53 Ey	2.3E+06	2.1E+05	4.9E+03	9.4	1.2	19.5

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
49Ca	8.718 m	2.9E+05	2.6E+04	6.2E+02	9.0	1.2	18.7
50Ca	13.9 s	3.0E+04	4.3E+02	1.0E+01	8.7	1.2	18.0
51Ca	10 s	2.7E+03	2.3E+01	5.3E-01	8.3	1.2	17.3
40Sc	182.3 ms	2.5E+06	4.3E+02	8.7E+00	13.5	1.2	24.8
41Sc	596.3 ms	3.7E+07	2.1E+04	4.6E+02	12.8	1.2	24.8
42Sc	681.3 ms	1.4E+08	9.0E+04	2.0E+03	12.2	1.2	24.8
42Scm	61.7 s	1.4E+08	3.9E+06	9.2E+04	12.2	1.2	24.8
43Sc	3.891 h	1.1E+09	5.9E+07	1.4E+06	11.7	1.2	24.2
44Sc	3.97 h	1.2E+09	6.2E+07	1.5E+06	11.2	1.2	23.2
44Scm	58.61 h	1.2E+09	6.3E+07	1.5E+06	11.2	1.2	23.2
45Scm	318 ms	1.2E+09	3.5E+05	7.6E+03	10.7	1.2	22.1
46Sc	83.79 d	6.5E+08	3.6E+07	8.4E+05	10.2	1.2	21.2
46Scm	18.75 s	6.5E+08	9.0E+06	2.1E+05	10.2	1.2	21.2
47Sc	3.3492 d	4.6E+08	2.6E+07	6.0E+05	9.8	1.2	20.3
48Sc	43.67 h	1.2E+08	6.7E+06	1.6E+05	9.4	1.2	19.5
49Sc	57.2 m	2.6E+07	1.4E+06	3.4E+04	9.0	1.2	18.7
50Sc	102.5 s	2.2E+06	7.9E+04	1.8E+03	8.7	1.2	18.0
50Scm	350 ms	2.2E+06	7.5E+02	1.6E+01	8.7	1.2	18.0
51Sc	12.4 s	5.9E+05	6.1E+03	1.4E+02	8.3	1.2	17.3
52Sc	8.2 s	6.9E+04	5.0E+02	1.2E+01	8.0	1.2	16.6
48Cr	21.56 h	1.3E+08	7.2E+06	1.7E+05	11.6	1.2	24.8
49Cr	42.3 m	7.0E+08	1.6E+07	3.8E+05	11.1	1.2	24.8
51Cr	27.7025 d	3.2E+09	1.8E+08	4.3E+06	10.3	1.2	22.9
55Cr	3.497 m	1.2E+08	1.2E+05	2.7E+03	8.8	1.2	19.8
56Cr	5.94 m	2.5E+07	5.3E+04	1.2E+03	8.5	1.2	19.1
57Cr	21.1 s	4.5E+06	1.4E+02	3.3E+00	8.2	1.2	18.4
58Cr	7 s	6.7E+05	4.1E+00	9.5E-02	7.9	1.2	17.8
47Mn	100 ms	2.0E+04	3.4E+01	5.4E-01	14.6	1.2	24.8
48Mn	158.1 ms	4.3E+05	1.4E+03	2.5E+01	14.0	1.2	24.8
49Mn	382 ms	8.5E+06	9.1E+04	1.8E+03	13.4	1.2	24.8
50Mn	283.9 ms	4.8E+07	3.5E+05	6.7E+03	12.9	1.2	24.8
50Mnm	1.75 m	4.8E+07	2.7E+06	5.7E+04	12.9	1.2	24.8
51Mn	46.2 m	5.7E+08	3.2E+07	6.9E+05	12.4	1.2	24.8
52Mn	5.591 d	9.0E+08	5.2E+07	1.1E+06	11.9	1.2	24.8
52Mnm	21.1 m	9.0E+08	5.2E+07	1.1E+06	11.9	1.2	24.8
53Mn	3.7 My	3.2E+09	1.8E+08	3.9E+06	11.5	1.2	24.2
54Mn	312.03 d	3.0E+09	1.7E+08	3.7E+06	11.1	1.2	23.3
56Mn	2.5789 h	6.2E+08	3.6E+07	7.7E+05	10.3	1.2	21.7
57Mn	85.4 s	1.8E+08	1.1E+07	2.2E+05	9.9	1.2	20.9
58Mn	3 s	2.2E+07	1.1E+06	2.2E+04	9.6	1.2	20.2
58Mnm	65.2 s	2.2E+07	1.3E+06	2.7E+04	9.6	1.2	20.2
59Mn	4.59 s	8.4E+06	4.6E+05	9.6E+03	9.3	1.2	19.5

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
60Mn	51 s	7.0E+05	4.2E+04	8.9E+02	9.0	1.2	18.9
60Mnm	1.77 s	7.0E+05	3.0E+04	6.1E+02	9.0	1.2	18.9
61Mn	670 ms	1.9E+05	4.1E+03	8.2E+01	8.7	1.2	18.3
62Mn	671 ms	1.2E+04	2.5E+02	5.0E+00	8.4	1.2	17.7
62Mnm	92 ms	1.2E+04	1.9E+01	3.0E-01	8.4	1.2	17.7
63Mn	275 ms	2.4E+03	1.8E+01	3.5E-01	8.1	1.2	17.2
52Fe	8.275 h	3.4E+07	1.9E+06	3.9E+04	11.9	1.2	24.8
52Fem	45.9 s	3.4E+07	3.4E+03	7.0E+01	11.9	1.2	24.8
53Fe	8.51 m	2.3E+08	7.8E+05	1.6E+04	11.5	1.2	24.2
53Fem	2.526 m	2.3E+08	1.3E+05	2.8E+03	11.5	1.2	24.2
55Fe	2.737 y	3.2E+09	1.9E+08	3.9E+06	10.7	1.2	22.5
59Fe	44.495 d	2.8E+08	1.7E+07	3.5E+05	9.3	1.2	19.5
60Fe	1.5 My	7.3E+07	4.4E+06	9.1E+04	9.0	1.2	18.9
61Fe	5.98 m	1.5E+07	3.3E+04	6.9E+02	8.7	1.2	18.3
62Fe	68 s	2.7E+06	5.1E+02	1.1E+01	8.4	1.2	17.7
54Com	1.48 m	2.4E+07	6.4E+03	1.3E+02	11.1	1.2	23.3
55Co	17.53 h	3.5E+08	2.0E+07	4.2E+05	10.7	1.2	22.5
56Co	77.23 d	1.4E+09	8.2E+07	1.7E+06	10.3	1.2	21.7
57Co	271.74 d	3.2E+09	1.9E+08	3.9E+06	9.9	1.2	20.9
58Co	70.86 d	2.0E+09	1.2E+08	2.4E+06	9.6	1.2	20.2
58Com	9.04 h	2.0E+09	1.1E+08	2.3E+06	9.6	1.2	20.2
60Co	5.2713 y	6.0E+08	3.6E+07	7.5E+05	9.0	1.2	18.9
60Com	10.467 m	6.0E+08	2.9E+06	6.0E+04	9.0	1.2	18.9
61Co	1.65 h	4.3E+08	1.9E+07	3.9E+05	8.7	1.2	18.3
62Co	1.5 m	6.0E+07	1.7E+04	3.6E+02	8.4	1.2	17.7
62Com	13.91 m	6.0E+07	4.3E+05	9.0E+03	8.4	1.2	17.7
63Co	26.9 s	2.7E+07	1.3E+03	2.7E+01	8.2	1.2	17.2
56Ni	6.075 d	3.3E+07	1.9E+06	4.0E+04	12.3	1.2	24.4
57Ni	35.6 h	2.7E+08	1.6E+07	3.3E+05	11.8	1.2	23.6
59Ni	101 ky	3.0E+09	1.8E+08	3.7E+06	11.0	1.2	22.0
63Ni	100.1 y	6.3E+08	3.8E+07	8.0E+05	9.7	1.2	19.4
65Ni	2.5172 h	4.7E+07	2.4E+06	5.0E+04	9.1	1.2	18.2
66Ni	54.6 h	9.6E+06	6.0E+05	1.2E+04	8.8	1.2	17.7
67Ni	21 s	1.7E+06	5.7E+01	1.2E+00	8.6	1.2	17.1
68Ni	29 s	2.6E+05	1.4E+01	2.9E-01	8.3	1.2	16.6
55Cu	40# ms	2.5E+03	8.7E+00	9.0E-02	12.7	1.2	24.8
56Cu	93 ms	5.7E+04	4.7E+02	6.7E+00	12.2	1.2	24.4
57Cu	196.3 ms	1.3E+06	2.0E+04	3.3E+02	11.8	1.2	23.6
58Cu	3.204 s	2.2E+07	1.1E+06	2.1E+04	11.4	1.2	22.8
59Cu	81.5 s	2.0E+08	1.2E+07	2.3E+05	11.0	1.2	22.0
60Cu	23.7 m	9.9E+08	5.9E+07	1.2E+06	10.7	1.2	21.3
61Cu	3.333 h	2.8E+09	1.7E+08	3.3E+06	10.3	1.2	20.6

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
62Cu	9.673 m	4.4E+09	2.7E+08	5.3E+06	10.0	1.2	20.0
64Cu	12.7 h	2.2E+09	1.4E+08	2.7E+06	9.4	1.2	18.8
66Cu	5.12 m	2.9E+08	1.8E+07	3.5E+05	8.8	1.2	17.7
67Cu	61.83 h	7.8E+07	4.9E+06	9.6E+04	8.6	1.2	17.1
68Cu	31.1 s	8.5E+06	5.2E+05	1.0E+04	8.3	1.2	16.6
68Cum	3.75 m	8.5E+06	5.3E+05	1.1E+04	8.3	1.2	16.6
69Cu	2.85 m	3.3E+06	2.1E+05	4.1E+03	8.1	1.2	16.2
70Cu	44.5 s	1.8E+05	1.1E+04	2.2E+02	7.9	1.2	15.7
70Cum	33 s	1.8E+05	1.1E+04	2.2E+02	7.9	1.2	15.7
70Cun	6.6 s	1.8E+05	1.0E+04	2.0E+02	7.9	1.2	15.7
71Cu	19.4 s	7.7E+04	4.7E+03	9.3E+01	7.6	1.2	15.3
72Cu	6.6 s	9.8E+03	5.7E+02	1.1E+01	7.4	1.2	14.9
73Cu	4.2 s	1.1E+03	6.1E+01	1.2E+00	7.2	1.2	14.4
74Cu	1.594 s	1.1E+02	5.0E+00	9.6E-02	7.0	1.2	14.1
58Zn	84 ms	3.3E+04	7.7E+01	1.0E+00	11.4	1.2	22.8
59Zn	182 ms	7.8E+05	3.5E+03	5.7E+01	11.0	1.2	22.0
60Zn	2.38 m	1.4E+07	7.9E+05	1.5E+04	10.7	1.2	21.3
61Zn	89.1 s	7.0E+07	3.8E+06	7.4E+04	10.3	1.2	20.6
61Znn	140 ms	7.0E+07	2.6E+05	4.0E+03	10.3	1.2	20.6
62Zn	9.186 h	8.0E+08	4.9E+07	9.4E+05	10.0	1.2	20.0
63Zn	38.47 m	2.5E+09	1.5E+08	2.9E+06	9.7	1.2	19.4
65Zn	244.06 d	4.6E+09	2.8E+08	5.5E+06	9.1	1.2	18.2
69Zn	56.4 m	6.5E+07	4.1E+06	7.9E+04	8.1	1.2	16.2
69Znm	13.76 h	6.5E+07	4.1E+06	8.0E+04	8.1	1.2	16.2
71Zn	2.45 m	3.1E+06	1.9E+05	3.6E+03	7.6	1.2	15.3
71Znm	3.96 h	3.1E+06	2.0E+05	3.8E+03	7.6	1.2	15.3
72Zn	46.5 h	1.1E+06	7.1E+04	1.4E+03	7.4	1.2	14.9
73Zn	23.5 s	5.7E+04	2.7E+03	5.3E+01	7.2	1.2	14.5
73Znm	13 ms	5.7E+04	1.7E+01	8.5E-02	7.2	1.2	14.5
73Znn	5.8 s	5.7E+04	1.8E+03	3.4E+01	7.2	1.2	14.5
74Zn	95.6 s	2.3E+04	1.4E+03	2.6E+01	7.0	1.2	14.1
75Zn	10.2 s	2.8E+03	1.1E+02	2.1E+00	6.8	1.2	13.7
76Zn	5.7 s	3.3E+02	1.0E+01	2.0E-01	6.7	1.2	13.3
60Ga	70 ms	1.9E+04	1.5E+01	1.8E-01	12.5	1.2	23.9
61Ga	168 ms	4.5E+05	8.5E+02	1.3E+01	12.1	1.2	23.1
62Ga	115.99 ms	9.1E+06	1.2E+04	1.7E+02	11.7	1.2	22.4
63Ga	32.4 s	1.0E+08	3.5E+06	6.7E+04	11.4	1.2	21.7
64Ga	2.627 m	6.3E+08	3.3E+07	6.2E+05	11.0	1.2	21.0
65Ga	15.2 m	2.2E+09	1.3E+08	2.5E+06	10.7	1.2	20.4
66Ga	9.49 h	4.4E+09	2.7E+08	5.2E+06	10.4	1.2	19.8
67Ga	3.2612 d	5.2E+09	3.2E+08	6.2E+06	10.1	1.2	19.2
68Ga	67.71 m	3.6E+09	2.2E+08	4.3E+06	9.8	1.2	18.6

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
70Ga	21.14 m	6.6E+08	4.1E+07	7.8E+05	9.2	1.2	17.6
72Ga	14.1 h	2.6E+07	1.7E+06	3.2E+04	8.7	1.2	16.6
72Gam	39.68 ms	2.6E+07	1.1E+04	1.0E+02	8.7	1.2	16.6
73Ga	4.86 h	1.1E+07	7.1E+05	1.3E+04	8.5	1.2	16.2
74Ga	8.12 m	1.1E+06	6.4E+04	1.2E+03	8.3	1.2	15.8
74Gam	9.5 s	1.1E+06	2.4E+04	4.6E+02	8.3	1.2	15.8
75Ga	126 s	3.6E+05	1.9E+04	3.6E+02	8.0	1.2	15.3
76Ga	32.6 s	5.4E+04	2.0E+03	3.9E+01	7.8	1.2	14.9
77Ga	13.2 s	7.7E+03	2.1E+02	4.0E+00	7.6	1.2	14.6
78Ga	5.09 s	1.0E+03	1.8E+01	3.4E-01	7.4	1.2	14.2
63Ge	142 ms	2.6E+05	2.3E+00	3.4E-02	11.4	1.2	21.7
64Ge	63.7 s	5.7E+06	8.0E+04	1.5E+03	11.0	1.2	21.0
65Ge	30.9 s	7.0E+07	5.3E+05	9.8E+03	10.7	1.2	20.4
66Ge	2.26 h	4.8E+08	2.9E+07	5.4E+05	10.4	1.2	19.8
67Ge	18.9 m	1.9E+09	1.0E+08	1.9E+06	10.1	1.2	19.2
68Ge	270.95 d	4.3E+09	2.7E+08	5.0E+06	9.8	1.2	18.6
69Ge	39.05 h	5.7E+09	3.6E+08	6.7E+06	9.5	1.2	18.1
71Ge	11.43 d	1.2E+09	7.3E+07	1.4E+06	9.0	1.2	17.1
71Gem	20.4 ms	1.2E+09	6.2E+02	3.9E+00	9.0	1.2	17.1
73Gen	499 ms	1.6E+08	8.9E+03	1.5E+02	8.5	1.2	16.2
75Ge	82.78 m	1.0E+07	6.3E+05	1.2E+04	8.0	1.2	15.3
75Gem	47.7 s	1.0E+07	1.2E+05	2.2E+03	8.0	1.2	15.3
76Ge	1.58 Zy	4.2E+06	2.8E+05	5.1E+03	7.8	1.2	14.9
77Ge	11.3 h	4.1E+05	2.7E+04	5.0E+02	7.6	1.2	14.6
77Gem	52.9 s	4.1E+05	5.2E+03	9.7E+01	7.6	1.2	14.6
78Ge	88 m	1.4E+05	8.9E+03	1.7E+02	7.4	1.2	14.2
79Ge	18.98 s	1.2E+04	5.9E+01	1.1E+00	7.2	1.2	13.8
79Gem	39 s	1.2E+04	1.2E+02	2.1E+00	7.2	1.2	13.8
80Ge	29.5 s	3.5E+03	2.7E+01	5.1E-01	7.1	1.2	13.5
67As	42.5 s	4.7E+07	1.5E+05	2.7E+03	10.1	1.2	21.3
68As	151.6 s	1.9E+08	2.3E+06	4.1E+04	9.8	1.2	20.7
68Asm	111 s	1.9E+08	1.7E+06	3.1E+04	9.8	1.2	20.7
69As	15.2 m	1.6E+09	6.3E+07	1.1E+06	9.5	1.2	20.1
70As	52.6 m	4.0E+09	2.2E+08	4.0E+06	9.2	1.2	19.6
71As	65.28 h	6.0E+09	3.8E+08	7.0E+06	9.0	1.2	19.0
72As	26 h	5.2E+09	3.3E+08	6.1E+06	8.7	1.2	18.5
73As	80.3 d	3.0E+09	1.9E+08	3.5E+06	8.5	1.2	18.0
74As	17.77 d	1.3E+09	8.4E+07	1.5E+06	8.3	1.2	17.5
75Asm	17.62 ms	2.4E+08	1.1E+01	6.0E-02	8.0	1.2	17.1
76As	1.0778 d	1.4E+08	9.1E+06	1.7E+05	7.8	1.2	16.6
77As	38.83 h	3.8E+07	2.5E+06	4.6E+04	7.6	1.2	16.2
78As	90.7 m	9.1E+06	5.5E+05	1.0E+04	7.4	1.2	15.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
79As	9.01 m	2.0E+06	6.5E+04	1.2E+03	7.2	1.2	15.4
80As	15.2 s	3.9E+05	3.5E+02	6.4E+00	7.1	1.2	15.0
81As	33.3 s	7.0E+04	1.8E+02	3.2E+00	6.9	1.2	14.7
82As	19.1 s	5.5E+03	6.8E+00	1.2E-01	6.7	1.2	14.3
82Asm	13.6 s	5.5E+03	4.3E+00	7.9E-02	6.7	1.2	14.3
67Se	133 ms	8.1E+04	1.2E+01	1.6E-01	11.6	1.2	23.6
68Se	35.5 s	2.1E+06	7.4E+03	1.3E+02	11.3	1.2	22.9
69Se	27.4 s	3.2E+07	1.0E+05	1.8E+03	11.0	1.2	22.3
70Se	41.1 m	2.7E+08	6.9E+06	1.2E+05	10.7	1.2	21.7
71Se	4.74 m	1.3E+09	1.3E+07	2.3E+05	10.4	1.2	21.1
72Se	8.4 d	3.7E+09	2.4E+08	4.2E+06	10.1	1.2	20.5
73Se	7.15 h	3.1E+09	1.6E+08	2.9E+06	9.8	1.2	19.9
73Sem	39.8 m	3.1E+09	7.8E+07	1.4E+06	9.8	1.2	19.9
75Se	119.779 d	3.9E+09	2.5E+08	4.6E+06	9.3	1.2	18.9
77Sem	17.36 s	3.7E+08	9.6E+05	1.7E+04	8.8	1.2	17.9
79Se	295 ky	3.8E+07	2.5E+06	4.5E+04	8.4	1.2	17.1
79Sem	3.92 m	3.8E+07	3.5E+05	6.3E+03	8.4	1.2	17.1
81Se	18.45 m	2.5E+06	4.7E+04	8.4E+02	8.0	1.2	16.2
81Sem	57.28 m	2.5E+06	7.5E+04	1.4E+03	8.0	1.2	16.2
82Se	97 Ey	1.0E+06	6.8E+04	1.2E+03	7.8	1.2	15.8
83Se	22.3 m	9.0E+04	1.9E+03	3.4E+01	7.6	1.2	15.5
83Sem	70.1 s	9.0E+04	4.8E+02	8.6E+00	7.6	1.2	15.5
84Se	3.1 m	2.5E+04	2.1E+02	3.8E+00	7.4	1.2	15.1
85Se	31.7 s	2.5E+03	9.1E+00	1.6E-01	7.3	1.2	14.7
70Br	79.1 ms	6.0E+05	3.1E+02	3.5E+00	10.7	1.2	21.7
70Brm	2.2 s	6.0E+05	1.4E+04	2.3E+02	10.7	1.2	21.7
71Br	21.4 s	2.1E+07	1.2E+06	2.1E+04	10.4	1.2	21.1
72Br	78.6 s	1.0E+08	6.3E+06	1.1E+05	10.1	1.2	20.5
72Brm	10.6 s	1.0E+08	5.2E+06	9.0E+04	10.1	1.2	20.5
73Br	3.4 m	1.1E+09	7.1E+07	1.2E+06	9.8	1.2	19.9
74Br	25.4 m	1.7E+09	1.1E+08	1.9E+06	9.6	1.2	19.4
74Brm	46 m	1.7E+09	1.1E+08	1.9E+06	9.6	1.2	19.4
75Br	96.7 m	6.1E+09	4.0E+08	7.0E+06	9.3	1.2	18.9
76Br	16.2 h	3.5E+09	2.3E+08	4.0E+06	9.1	1.2	18.4
76Brm	1.31 s	3.5E+09	5.1E+07	8.7E+05	9.1	1.2	18.4
77Br	57.036 h	2.5E+09	1.6E+08	2.9E+06	8.8	1.2	17.9
77Brm	4.28 m	2.5E+09	1.6E+08	2.9E+06	8.8	1.2	17.9
78Br	6.46 m	2.7E+09	1.8E+08	3.1E+06	8.6	1.2	17.5
79Brm	4.86 s	6.0E+08	2.4E+07	4.2E+05	8.4	1.2	17.1
80Br	17.68 m	2.4E+08	1.6E+07	2.8E+05	8.2	1.2	16.6
80Brm	4.4205 h	2.4E+08	1.6E+07	2.8E+05	8.2	1.2	16.6
82Br	35.282 h	2.3E+07	1.6E+06	2.7E+04	7.8	1.2	15.8

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
82Brm	6.13 m	2.3E+07	1.6E+06	2.7E+04	7.8	1.2	15.8
83Br	2.4 h	1.2E+07	8.2E+05	1.4E+04	7.6	1.2	15.5
84Br	31.8 m	1.2E+06	8.2E+04	1.4E+03	7.4	1.2	15.1
84Brm	6 m	1.2E+06	8.2E+04	1.4E+03	7.4	1.2	15.1
85Br	2.9 m	3.7E+05	2.5E+04	4.4E+02	7.3	1.2	14.8
86Br	55.1 s	4.1E+04	2.7E+03	4.8E+01	7.1	1.2	14.4
87Br	55.65 s	2.8E+03	1.9E+02	3.3E+00	6.9	1.2	14.1
70Kr	57 ms	9.6E+02	6.0E+00	5.7E-02	10.7	1.2	21.7
71Kr	100 ms	2.5E+04	2.0E+02	2.4E+00	10.4	1.2	21.1
72Kr	17.16 s	7.1E+05	3.0E+04	4.9E+02	10.1	1.2	20.5
73Kr	28.6 s	1.3E+07	6.0E+05	9.9E+03	9.8	1.2	19.9
74Kr	11.5 m	1.4E+08	8.4E+06	1.4E+05	9.6	1.2	19.4
75Kr	4.29 m	8.3E+08	4.8E+07	7.9E+05	9.3	1.2	18.9
76Kr	14.8 h	2.9E+09	1.9E+08	3.1E+06	9.1	1.2	18.4
77Kr	74.4 m	5.9E+09	3.8E+08	6.3E+06	8.8	1.2	17.9
79Kr	35.04 h	3.2E+09	2.1E+08	3.5E+06	8.4	1.2	17.1
79Krm	50 s	3.2E+09	1.6E+08	2.7E+06	8.4	1.2	17.1
81Kr	229 ky	1.0E+09	6.7E+07	1.1E+06	8.0	1.2	16.2
81Krm	13.1 s	1.0E+09	4.2E+07	6.9E+05	8.0	1.2	16.2
83Krn	1.83 h	1.6E+08	1.1E+07	1.8E+05	7.6	1.2	15.5
85Kr	10.776 y	1.3E+07	8.6E+05	1.4E+04	7.3	1.2	14.8
85Krm	4.48 h	1.3E+07	8.4E+05	1.4E+04	7.3	1.2	14.8
87Kr	76.3 m	6.3E+05	4.2E+04	6.9E+02	6.9	1.2	14.1
88Kr	2.84 h	4.9E+04	3.3E+03	5.5E+01	6.8	1.2	13.8
74Rb	64.76 ms	4.1E+05	1.6E+04	1.6E+02	11.0	1.2	21.4
75Rb	19 s	8.3E+06	1.7E+06	2.8E+04	10.7	1.2	20.8
76Rb	36.5 s	9.4E+07	2.1E+07	3.5E+05	10.4	1.2	20.3
77Rb	3.77 m	5.9E+08	1.5E+08	2.6E+06	10.1	1.2	19.8
78Rb	17.66 m	1.1E+09	3.1E+08	5.2E+06	9.9	1.2	19.3
78Rbm	5.74 m	1.1E+09	2.9E+08	4.9E+06	9.9	1.2	19.3
79Rb	22.9 m	5.2E+09	1.5E+09	2.5E+07	9.6	1.2	18.8
80Rb	33.4 s	7.8E+09	1.7E+09	2.8E+07	9.4	1.2	18.3
81Rb	4.576 h	4.0E+09	1.2E+09	2.0E+07	9.2	1.2	17.9
81Rbm	30.5 m	4.0E+09	1.1E+09	1.9E+07	9.2	1.2	17.9
82Rb	1.273 m	2.9E+09	6.9E+08	1.2E+07	8.9	1.2	17.4
82Rbm	6.472 h	2.9E+09	8.7E+08	1.5E+07	8.9	1.2	17.4
83Rb	86.2 d	1.7E+09	5.1E+08	8.5E+06	8.7	1.2	17.0
83Rbm	7.8 ms	1.7E+09	2.7E+07	6.7E+04	8.7	1.2	17.0
84Rb	32.77 d	8.0E+08	2.5E+08	4.1E+06	8.5	1.2	16.6
84Rbm	20.26 m	8.0E+08	2.3E+08	3.8E+06	8.5	1.2	16.6
86Rb	18.642 d	1.1E+08	3.4E+07	5.7E+05	8.1	1.2	15.9
86Rbm	1.017 m	1.1E+08	2.6E+07	4.3E+05	8.1	1.2	15.9

Isotope	T1/2	Production dans la cible (pps)	Intensité 1+ (pps)	Intensité accélérée	Energie moyenne (AMeV)	Energie min (AMeV)	Energie max (AMeV)
87Rb	49.23 Gy	5.5E+07	1.7E+07	2.8E+05	7.9	1.2	15.5
88Rb	17.78 m	9.2E+06	2.6E+06	4.4E+04	7.8	1.2	15.2
89Rb	15.15 m	9.1E+05	2.6E+05	4.3E+03	7.6	1.2	14.8
76Sr	8.9 s	2.1E+05	1.5E+03	2.5E+01	10.4	1.2	20.3
77Sr	9 s	4.5E+06	3.3E+04	5.6E+02	10.1	1.2	19.8
78Sr	159 s	5.3E+07	5.3E+06	8.9E+04	9.9	1.2	19.3
79Sr	2.25 m	3.6E+08	3.5E+07	5.8E+05	9.6	1.2	18.8
80Sr	106.3 m	1.5E+09	1.8E+08	3.0E+06	9.4	1.2	18.3
81Sr	22.3 m	4.0E+09	4.8E+08	8.0E+06	9.2	1.2	17.9
82Sr	25.36 d	7.2E+09	8.7E+08	1.5E+07	8.9	1.2	17.4
83Sr	32.41 h	4.6E+09	5.6E+08	9.3E+06	8.7	1.2	17.0
83Srm	4.95 s	4.6E+09	1.4E+07	2.4E+05	8.7	1.2	17.0
85Sr	64.853 d	2.9E+09	3.5E+08	5.9E+06	8.3	1.2	16.2
85Srm	67.63 m	2.9E+09	3.5E+08	5.9E+06	8.3	1.2	16.2
87Srm	2.815 h	8.0E+08	9.7E+07	1.6E+06	7.9	1.2	15.5
89Sr	50.53 d	1.3E+08	1.6E+07	2.6E+05	7.6	1.2	14.8
90Sr	28.79 y	1.9E+07	2.3E+06	3.9E+04	7.4	1.2	14.5
78Yxm	5.8 s	4.4E+04	3.2E+00	5.3E-02	9.9	1.2	19.3
79Y	14.8 s	1.9E+06	4.8E+02	8.1E+00	9.6	1.2	18.8
80Y	30.1 s	1.2E+07	7.0E+03	1.2E+02	9.4	1.2	18.3
80Yxm	4.8 s	1.2E+07	6.6E+02	1.1E+01	9.4	1.2	18.3
81Y	70.4 s	1.7E+08	2.7E+05	4.5E+03	9.2	1.2	17.9
82Y	8.3 s	8.2E+08	1.0E+05	1.7E+03	8.9	1.2	17.4
83Y	7.08 m	1.3E+09	1.2E+07	2.0E+05	8.7	1.2	17.0
83Yxm	2.85 m	1.3E+09	5.2E+06	8.7E+04	8.7	1.2	17.0
84Y	4.6 s	2.9E+09	1.6E+05	2.6E+03	8.5	1.2	16.6
84Yxm	39.5 m	2.9E+09	9.2E+07	1.6E+06	8.5	1.2	16.6
85Y	2.68 h	4.7E+09	2.5E+08	4.2E+06	8.3	1.2	16.2
85Yxm	4.86 h	4.7E+09	2.8E+08	4.7E+06	8.3	1.2	16.2
86Y	14.74 h	6.0E+09	3.9E+08	6.6E+06	8.1	1.2	15.9
86Yxm	48 m	6.0E+09	2.1E+08	3.6E+06	8.1	1.2	15.9
87Y	79.8 h	6.0E+09	4.1E+08	6.8E+06	7.9	1.2	15.5
87Yxm	13.37 h	6.0E+09	3.9E+08	6.5E+06	7.9	1.2	15.5
88Y	106.65 d	4.3E+09	2.9E+08	4.9E+06	7.8	1.2	15.2
88Yxm	13.9 ms	4.3E+09	4.8E+01	1.9E-01	7.8	1.2	15.2
89Yxm	15.663 s	2.3E+09	6.4E+05	1.1E+04	7.6	1.2	14.8
90Y	64 h	8.5E+08	5.8E+07	9.7E+05	7.4	1.2	14.5
90Yxm	3.19 h	8.5E+08	4.7E+07	8.0E+05	7.4	1.2	14.5
91Y	58.51 d	2.1E+08	1.4E+07	2.4E+05	7.3	1.2	14.2
91Yxm	49.71 m	2.1E+08	7.5E+06	1.3E+05	7.3	1.2	14.2

Fusion evaporation targets

The fusion-evaporation reaction permits producing neutron deficient beams away from stability by selecting a suitable primary beam (Ap, Zp) and target (At, Zt). The different cross section estimates for fusion-evaporation give a range of intensities for 1+ beams to be used at LIRAT or DESIR and for accelerated beams.

Isotope		Primary beam				Target			1+ intensity (pps)		Accelerated intensity (pps)		E(AMeV)	
A	Z	Ap	Zp	Ep (MeV)	Intensity (pps)	At	Zt	T1/2(s)	Max	Min	Max	Min	Max	Min
13	7	7	3	44.0	2.3E+13	12	6	6.0E+02	3.6E+02	7.3E+01	2.1E+00	4.4E-01	14.17	3.53
14	8	3	2	6.0	2.5E+13	12	6	7.1E+01	1.2E+05	1.8E+03	7.2E+02	1.1E+01	21.64	5.40
15	8	3	2	15.0	2.5E+13	16	8	1.2E+02	9.0E+05	1.6E+05	5.4E+03	9.7E+02	18.88	4.71
18	10	16	8	38.0	1.9E+13	3	2	1.7E+00	3.6E+05	1.8E+04	8.2E+03	4.1E+02	20.47	5.11
19	10	20	10	34.0	1.9E+13	3	2	1.7E+01	6.2E+06	4.4E+05	1.4E+05	1.0E+04	18.40	4.58
20	11	19	10	28.0	1.9E+13	2	1	4.5E-01	3.7E+04	4.7E+03	5.8E+02	7.4E+01	16.61	4.14
21	11	20	10	14.0	1.9E+13	2	1	2.2E+01	2.7E+06	4.6E+04	4.3E+04	7.4E+02	15.09	3.76
22	11	3	2	90.5	2.5E+13	27	13	8.2E+07	7.8E+04	5.1E+04	1.2E+03	8.0E+02	13.76	3.42
22	12	3	2	9.4	2.5E+13	20	10	3.9E+00	4.5E+03	1.2E+03	7.2E+01	1.9E+01	19.75	4.92
23	12	3	2	9.0	2.5E+13	24	12	1.1E+01	4.3E+04	1.0E+04	6.8E+02	1.6E+02	18.09	4.51
23	13	1	1	48.0	6.3E+13	24	12	4.7E-01	1.2E+00	1.8E-01	2.6E-02	3.6E-03	18.08	4.50
24	13	3	2	59.6	2.5E+13	24	12	2.1E+00	2.0E+02	7.3E+01	4.2E+00	1.5E+00	16.62	4.14
25	13	15	7	27.0	1.9E+13	12	6	7.2E+00	2.7E+04	3.6E+02	5.5E+02	7.5E+00	15.33	3.82
26	13	3	2	15.0	2.5E+13	25	12	2.3E+12	1.1E+06	4.1E+05	2.2E+04	8.5E+03	14.19	3.53
32	17	3	2	34.5	2.5E+13	32	16	3.0E-01	4.1E+01	6.7E+00	1.1E+00	1.8E-01	16.63	4.14
33	17	32	16	90.0	9.4E+12	3	2	2.5E+00	1.1E+03	8.4E+01	3.1E+01	2.3E+00	15.65	3.90
34	17	3	2	9.0	2.5E+13	32	16	1.5E+00	3.2E+05	1.3E+04	8.8E+03	3.5E+02	14.75	3.67
34	18	32	16	80.0	9.4E+12	3	2	8.5E-01	8.4E+03	8.0E+02	4.8E+02	4.5E+01	14.74	3.67
35	18	3	2	6.7	2.5E+13	33	16	1.8E+00	4.3E+04	1.1E+03	2.4E+03	6.2E+01	13.92	3.46
35	19	3	2	135.0	2.5E+13	40	20	1.8E-01	1.0E+01	1.2E+00	3.5E-01	3.9E-02	13.92	3.46
38	19	16	8	44.0	1.9E+13	24	12	4.6E+02	1.5E+06	8.7E-41	5.2E+04	3.1E-42	11.82	2.94
38	20	3	2	9.0	2.5E+13	36	18	4.4E-01	7.9E+00	1.2E+00	2.8E-01	4.0E-02	14.94	3.72
39	20	3	2	12.0	2.5E+13	40	20	8.6E-01	4.5E+02	5.9E+01	1.6E+01	2.1E+00	14.19	3.53
41	21	3	2	40.0	2.5E+13	40	20	6.0E-01	2.8E+03	1.1E+01	9.8E+01	4.0E-01	12.85	3.19
42	21	3	2	15.0	2.5E+13	40	20	6.8E-01	6.2E+04	4.2E+02	2.2E+03	1.4E+01	12.25	3.05
43	21	16	8	42.0	1.9E+13	29	14	1.4E+04	2.1E+06	3.2E+05	7.4E+04	1.1E+04	11.69	2.91
44	21	3	2	13.5	2.5E+13	43	20	1.4E+04	3.3E+06	7.2E+05	1.2E+05	2.5E+04	11.17	2.78
48	24	3	2	12.0	2.5E+13	46	22	7.8E+04	1.2E+06	1.9E+04	4.1E+04	6.8E+02	11.58	2.88
49	24	40	20	140.0	6.3E+12	12	6	2.5E+03	7.0E+05	2.3E+05	2.5E+04	8.0E+03	11.12	2.76
48	25	40	20	110.0	6.3E+12	10	5	1.6E-01	2.4E+02	2.7E+01	7.5E+00	7.7E-01	13.99	3.48
49	25	40	20	160.0	6.3E+12	12	6	3.8E-01	1.0E+04	9.4E+02	3.2E+02	2.9E+01	13.43	3.34
50	25	3	2	39.5	2.5E+13	50	24	2.8E-01	5.7E+04	4.5E+03	1.8E+03	1.4E+02	12.91	3.21
51	25	14	7	40.0	1.9E+13	40	20	2.8E+03	1.0E+06	5.2E+05	3.2E+04	1.7E+04	12.41	3.09
52	25	3	2	16.5	2.5E+13	50	24	4.8E+05	3.3E+06	2.0E+04	1.1E+05	6.2E+02	11.94	2.97
53	25	3	2	18.0	2.5E+13	52	24	1.2E+13	3.4E+06	3.4E+05	1.1E+05	1.1E+04	11.50	2.86
52	26	32	16	130.0	9.4E+12	24	12	3.0E+04	2.6E+05	3.4E+04	8.1E+03	1.1E+03	11.94	2.97
53	26	32	16	125.0	9.4E+12	28	14	5.1E+02	2.9E+04	4.1E+03	9.0E+02	1.3E+02	11.50	2.86
55	27	3	2	27.0	2.5E+13	54	26	6.3E+04	2.8E+06	1.0E+05	8.9E+04	3.2E+03	10.68	2.65

Isotope		Primary beam				Target			1+ intensity (pps)		Accelerated intensity (pps)		E(AMeV)	
A	Z	Ap	Zp	Ep (MeV)	Intensity (pps)	At	Zt	T1/2(s)	Max	Min	Max	Min	Max	Min
56	27	3	2	18.0	2.5E+13	54	26	6.7E+06	2.4E+06	1.1E+04	7.4E+04	3.4E+02	10.30	2.56
57	27	3	2	22.0	2.5E+13	56	26	2.3E+07	3.2E+06	5.7E+05	1.0E+05	1.8E+04	9.95	2.47
58	27	10	5	36.0	2.0E+13	51	23	6.1E+06	1.3E+06	3.7E+05	3.9E+04	1.2E+04	9.61	2.39
56	28	3	2	14.0	2.5E+13	54	26	5.2E+05	1.9E+06	5.7E+03	5.9E+04	1.8E+02	12.25	3.05
57	28	32	16	90.0	9.4E+12	28	14	1.3E+05	6.7E+05	2.2E+05	2.1E+04	7.0E+03	11.83	2.94
56	29	32	16	148.0	9.4E+12	28	14	9.3E-02	4.1E+01	3.2E+00	1.2E+00	8.0E-02	12.25	3.04
57	29	7	3	173.6	2.3E+13	58	28	2.0E-01	1.9E+02	2.3E-01	5.4E+00	6.2E-03	11.83	2.94
58	29	12	6	300.0	1.9E+13	58	28	3.2E+00	3.9E+05	1.9E+02	1.2E+04	5.6E+00	11.42	2.84
59	29	3	2	27.0	2.5E+13	58	28	8.2E+01	9.9E+05	5.3E+04	2.9E+04	1.6E+03	11.04	2.74
61	29	3	2	33.0	2.5E+13	60	28	1.2E+04	3.0E+06	3.0E+04	8.9E+04	8.9E+02	10.34	2.57
62	29	16	8	75.0	1.9E+13	50	24	5.8E+02	1.1E+06	1.2E+05	3.4E+04	3.5E+03	10.01	2.49
58	30	3	2	50.0	2.5E+13	58	28	8.4E-02	1.4E+01	1.7E+00	3.8E-01	4.3E-02	11.42	2.84
59	30	3	2	25.0	2.5E+13	58	28	1.8E-01	3.3E+02	8.4E+01	9.6E+00	2.3E+00	11.04	2.74
60	30	3	2	15.0	2.5E+13	58	28	8.9E+01	1.2E+05	3.2E+03	3.4E+03	9.3E+01	10.68	2.65
61	30	24	12	65.0	1.6E+13	40	20	3.3E+04	2.7E+05	6.5E+04	7.7E+03	1.9E+03	10.33	2.57
62	30	6	3	20.0	2.3E+13	58	28	3.3E+04	1.1E+06	1.0E+03	3.1E+04	3.0E+01	10.01	2.49
63	30	16	8	75.0	1.9E+13	50	24	2.3E+03	7.5E+05	9.0E+03	2.2E+04	2.6E+02	9.69	2.41
64	30	54	26	185.0	3.9E+12	12	6	-2.0E+00	6.8E+05	1.0E+05	2.0E+04	3.0E+03	9.39	2.33
60	31	36	18	170.0	9.4E+12	28	14	7.0E-02	2.4E+00	1.1E-01	6.6E-02	2.6E-03	12.52	3.11
61	31	40	20	104.0	6.3E+12	24	12	1.7E-01	6.3E+01	1.6E+00	1.8E+00	4.2E-02	12.12	3.01
62	31	28	14	88.0	1.3E+13	40	20	1.2E-01	7.6E+02	1.2E+02	2.1E+01	3.0E+00	11.73	2.92
63	31	32	16	100.0	9.4E+12	40	20	3.2E+01	1.0E+05	9.4E-02	2.9E+03	2.7E-03	11.36	2.82
64	31	12	6	45.0	1.9E+13	54	26	1.6E+02	3.8E+05	2.5E+04	1.1E+04	7.1E+02	11.01	2.74
65	31	12	6	39.0	1.9E+13	58	28	9.1E+02	5.2E+05	3.7E+02	1.5E+04	1.1E+01	10.68	2.65
66	31	13	6	35.0	1.9E+13	56	26	3.4E+04	8.0E+05	1.3E+05	2.3E+04	3.6E+03	10.36	2.57
67	31	3	2	18.0	2.5E+13	66	30	2.8E+05	2.8E+06	1.8E+04	8.0E+04	5.1E+02	10.06	2.50
68	31	16	8	55.0	1.9E+13	55	25	4.1E+03	4.1E+05	1.6E+05	1.2E+04	4.7E+03	9.76	2.43
64	32	54	26	185.0	3.9E+12	12	6	6.4E+01	4.6E+03	6.1E+02	1.3E+02	1.7E+01	11.01	2.74
66	32	32	16	105.0	9.4E+12	40	20	8.1E+03	3.1E+05	1.2E+05	8.7E+03	3.2E+03	10.36	2.57
67	32	3	1	70.0	6.3E+13	70	32	1.1E+03	2.0E+06	9.2E+04	5.7E+04	2.6E+03	10.06	2.50
67	33	36	18	145.0	9.4E+12	40	20	4.3E+01	4.1E+03	1.3E+02	1.1E+02	3.5E+00	10.05	2.50
70	33	14	7	46.0	1.9E+13	58	28	3.2E+03	3.2E+05	3.9E+04	8.9E+03	1.1E+03	9.22	2.29
71	33	23	11	80.0	1.7E+13	54	26	2.4E+05	3.6E+05	1.5E+05	9.8E+03	4.0E+03	8.96	2.22
67	34	32	16	90.0	9.4E+12	40	20	1.3E-01	4.9E+00	5.2E-02	1.3E-01	1.2E-03	11.65	2.90
68	34	58	28	220.0	3.1E+12	12	6	3.6E+01	1.1E+03	1.2E+02	2.8E+01	3.2E+00	11.31	2.81
69	34	32	16	100.0	9.4E+12	40	20	2.7E+01	6.0E+03	1.3E+03	1.6E+02	3.6E+01	10.99	2.73
70	34	36	18	136.0	9.4E+12	40	20	2.5E+03	8.7E+04	9.4E+02	2.3E+03	2.5E+01	10.68	2.65
72	34	36	18	136.0	9.4E+12	40	20	7.3E+05	5.4E+05	7.9E+04	1.5E+04	2.1E+03	10.10	2.51
73	34	19	9	70.0	1.9E+13	58	28	2.6E+04	4.5E+05	2.3E+05	1.2E+04	6.3E+03	9.82	2.44
74	34	19	9	70.0	1.9E+13	58	28	-2.0E+00	4.3E+05	4.2E+04	1.2E+04	1.1E+03	9.56	2.37
69	36	32	16	170.0	9.4E+12	40	20	3.2E-02	1.5E+00	1.4E-01	3.4E-02	2.2E-03	10.98	2.73
71	36	40	20	160.0	6.3E+12	40	20	1.0E-01	2.4E+02	2.5E+00	5.7E+00	5.2E-02	10.38	2.58
72	36	32	16	140.0	9.4E+12	40	20	1.7E+01	2.6E+05	8.4E+00	6.6E+03	2.1E-01	10.10	2.51

Isotope		Primary beam				Target			1+ intensity (pps)		Accelerated intensity (pps)		E(AMeV)	
A	Z	Ap	Zp	Ep (MeV)	Intensity (pps)	At	Zt	T1/2(s)	Max	Min	Max	Min	Max	Min
73	36	40	20	185.0	6.3E+12	40	20	2.9E+01	5.8E+04	2.5E+02	1.4E+03	6.3E+00	9.82	2.44
74	36	40	20	147.0	6.3E+12	40	20	6.9E+02	1.6E+05	4.4E+02	3.9E+03	1.1E+01	9.56	2.37
75	36	28	14	90.0	1.3E+13	50	24	2.6E+02	4.1E+05	1.8E+05	1.0E+04	4.4E+03	9.31	2.31
74	37	40	20	165.0	6.3E+12	40	20	6.5E-02	2.4E+03	7.5E+00	5.9E+01	1.5E-01	10.97	2.73
75	37	40	20	165.0	6.3E+12	40	20	1.9E+01	2.1E+04	2.1E+03	5.2E+02	5.3E+01	10.68	2.65
77	37	40	20	128.0	6.3E+12	40	20	2.3E+02	2.0E+05	7.5E+04	5.0E+03	1.9E+03	10.13	2.52
78	37	28	14	120.0	1.3E+13	54	26	1.1E+03	5.7E+05	1.6E+05	1.4E+04	4.1E+03	9.88	2.45
76	38	40	20	165.0	6.3E+12	40	20	8.9E+00	6.5E+02	2.4E+01	1.6E+01	6.1E-01	10.40	2.58
77	38	40	20	140.0	6.3E+12	40	20	9.0E+00	4.7E+03	6.3E+02	1.2E+02	1.6E+01	10.13	2.52
78	38	28	14	130.0	1.3E+13	58	28	1.6E+02	2.7E+04	2.6E+03	6.9E+02	6.6E+01	9.88	2.45
79	38	24	12	85.0	1.6E+13	58	28	1.4E+02	4.2E+05	1.4E+05	1.1E+04	3.6E+03	9.63	2.39
80	38	28	14	90.0	1.3E+13	54	26	6.4E+03	2.7E+05	2.2E+04	6.7E+03	5.4E+02	9.39	2.33
81	38	29	14	110.0	1.3E+13	58	28	1.3E+03	2.0E+05	1.3E+05	5.1E+03	3.3E+03	9.16	2.28
79	39	28	14	97.0	1.3E+13	54	26	1.5E+01	7.1E+01	9.1E+00	1.8E+00	2.3E-01	9.63	2.39
80	39	28	14	90.0	1.3E+13	54	26	3.0E+01	6.9E+02	4.5E+01	1.7E+01	1.1E+00	9.39	2.33
81	39	32	16	135.0	9.4E+12	58	28	7.0E+01	1.3E+03	3.8E+01	3.2E+01	9.5E-01	9.16	2.28
82	39	28	14	95.0	1.3E+13	58	28	8.3E+00	6.2E+01	1.2E+01	1.6E+00	3.0E-01	8.94	2.22
85	39	14	7	54.0	1.9E+13	76	32	9.6E+03	4.9E+05	4.5E+04	1.2E+04	1.1E+03	8.33	2.07
95	47	40	20	157.6	6.3E+12	58	28	1.7E+00	1.2E+03	1.6E+01	2.9E+01	3.7E-01	8.56	2.12
96	47	40	20	192.0	6.3E+12	60	28	6.9E+00	9.2E+03	5.0E+01	2.2E+02	1.2E+00	8.38	2.08
97	47	40	20	172.0	6.3E+12	60	28	2.5E+01	1.5E+04	7.0E+02	3.6E+02	1.7E+01	8.21	2.04
98	47	40	20	150.0	6.3E+12	61	28	4.7E+01	4.8E+04	2.3E+03	1.1E+03	5.5E+01	8.04	2.00
99	47	40	20	167.0	6.3E+12	64	30	1.2E+02	1.5E+05	1.9E+04	3.5E+03	4.6E+02	7.88	1.96
100	47	12	6	115.0	1.9E+13	92	42	1.2E+02	7.2E+04	1.1E+03	1.7E+03	2.6E+01	7.73	1.92
101	47	50	24	205.0	4.7E+12	58	28	6.7E+02	9.0E+04	2.0E+04	2.2E+03	4.8E+02	7.58	1.88
97	48	40	20	168.0	6.3E+12	60	28	2.8E+00	5.5E+00	2.2E-01	1.3E-01	5.3E-03	9.20	2.28
98	48	46	22	175.0	5.5E+12	58	28	9.2E+00	5.9E+02	4.2E+01	1.4E+01	1.0E+00	9.01	2.24
100	48	58	28	215.0	3.1E+12	46	22	4.9E+01	3.7E+04	4.5E+03	9.0E+02	1.1E+02	8.66	2.15
102	48	50	24	205.0	4.7E+12	58	28	3.3E+02	4.6E+04	9.9E+02	1.1E+03	2.4E+01	8.32	2.07
103	48	12	6	65.0	1.9E+13	94	42	4.4E+02	3.2E+05	6.6E+04	7.8E+03	1.6E+03	8.16	2.03
99	49	58	28	256.0	3.1E+12	46	22	3.1E+00	6.6E+01	1.4E+00	1.6E+00	3.3E-02	0.00	0.00
100	49	58	28	319.0	3.1E+12	50	24	5.9E+00	4.8E+01	4.8E+01	1.2E+00	1.1E+00	8.66	2.15
101	49	58	28	261.0	3.1E+12	50	24	1.5E+01	2.1E+03	1.8E+02	5.2E+01	4.3E+00	8.49	2.11
102	49	50	24	250.0	4.7E+12	58	28	2.3E+01	2.1E+04	1.5E+03	5.0E+02	3.6E+01	8.32	2.07
103	49	16	8	115.0	1.9E+13	92	42	6.0E+01	1.3E+05	3.1E+03	3.0E+03	7.5E+01	8.16	2.03
104	49	16	8	95.0	1.9E+13	92	42	1.1E+02	3.9E+05	3.0E+04	9.3E+03	7.3E+02	8.01	1.99
105	49	16	8	75.0	1.9E+13	92	42	3.0E+02	6.4E+05	1.4E+05	1.5E+04	3.5E+03	7.86	1.95
106	49	16	8	66.6	1.9E+13	92	42	3.7E+02	5.6E+05	5.8E+04	1.3E+04	1.4E+03	7.71	1.91
107	49	16	8	70.0	1.9E+13	94	42	1.9E+03	8.0E+05	1.5E+05	1.9E+04	3.5E+03	7.57	1.88
109	49	19	9	95.0	1.9E+13	92	42	1.5E+04	2.3E+03	1.9E+02	5.5E+01	4.5E+00	7.29	1.81
101	50	58	28	249.0	3.1E+12	50	24	3.0E+00	6.8E+00	5.3E-02	1.3E-01	1.0E-03	8.49	2.11
103	50	58	28	284.0	3.1E+12	50	24	7.0E+00	4.3E+02	5.5E+00	8.2E+00	1.0E-01	8.16	2.03
104	50	50	24	205.0	4.7E+12	58	28	2.1E+01	4.1E+03	2.0E+02	7.7E+01	3.8E+00	8.01	1.99

Isotope		Primary beam				Target			1+ intensity (pps)		Accelerated intensity (pps)		E(AMeV)	
A	Z	Ap	Zp	Ep (MeV)	Intensity (pps)	At	Zt	T1/2(s)	Max	Min	Max	Min	Max	Min
105	50	58	28	210.0	3.1E+12	50	24	3.4E+01	9.8E+03	9.6E+02	1.9E+02	1.8E+01	7.86	1.95
106	50	58	28	243.0	3.1E+12	54	26	1.2E+02	1.4E+04	6.9E+01	2.6E+02	1.3E+00	7.71	1.91
107	50	52	24	187.0	4.7E+12	58	28	1.7E+02	5.9E+04	6.4E+03	1.1E+03	1.2E+02	7.57	1.88
108	50	58	28	243.0	3.1E+12	54	26	6.2E+02	8.3E+04	6.2E+03	1.6E+03	1.2E+02	7.43	1.84
105	51	58	28	225.0	3.1E+12	50	24	1.1E+00	4.1E+00	4.9E-01	6.6E-02	7.7E-03	7.86	1.95
106	51	58	28	261.0	3.1E+12	54	26	6.0E-01	1.9E+01	9.0E-02	3.1E-01	1.4E-03	7.71	1.91
107	51	58	28	270.0	3.1E+12	54	26	4.6E+00	5.0E+02	5.7E+00	7.9E+00	9.1E-02	7.57	1.88
108	51	58	28	243.0	3.1E+12	54	26	7.4E+00	2.9E+03	4.2E+01	4.7E+01	6.7E-01	7.43	1.84
109	51	58	28	225.0	3.1E+12	54	26	1.7E+01	5.7E+03	9.9E+01	9.1E+01	1.6E+00	7.29	1.81
110	51	59	27	230.0	3.5E+12	54	26	2.3E+01	3.2E+03	6.0E+00	5.2E+01	9.6E-02	7.16	1.78
111	51	19	9	90.0	1.9E+13	96	44	7.5E+01	9.7E+04	1.2E+04	1.5E+03	1.9E+02	7.03	1.74
112	51	30	14	120.0	1.3E+13	89	39	5.1E+01	1.5E+04	3.5E+03	2.4E+02	5.6E+01	6.91	1.71
113	51	28	14	120.0	1.3E+13	88	38	4.0E+02	5.4E+04	2.9E+03	8.6E+02	4.6E+01	6.79	1.68
114	51	23	11	102.0	1.7E+13	96	40	2.1E+02	1.5E+05	6.9E+04	2.4E+03	1.1E+03	6.67	1.65
115	51	19	9	82.0	1.9E+13	100	42	1.9E+03	1.5E+05	1.0E+05	2.4E+03	1.6E+03	6.55	1.63
116	51	3	2	28.4	2.5E+13	115	50	9.5E+02	2.1E+05	2.1E+04	3.4E+03	3.4E+02	6.44	1.60
108	52	58	28	243.0	3.1E+12	54	26	2.1E+00	1.0E+03	3.4E+00	1.6E+01	5.4E-02	8.27	2.05
109	52	58	28	220.0	3.1E+12	54	26	4.6E+00	4.1E+03	2.1E+01	6.5E+01	3.4E-01	8.12	2.02
110	52	58	28	240.0	3.1E+12	58	28	1.9E+01	1.1E+04	1.7E+01	1.8E+02	2.8E-01	7.98	1.98
111	52	58	28	240.0	3.1E+12	56	26	1.9E+01	1.4E+04	1.8E+03	2.3E+02	2.8E+01	7.83	1.94
112	52	58	28	240.0	3.1E+12	58	28	1.2E+02	7.9E+04	1.7E+03	1.3E+03	2.7E+01	7.69	1.91
113	52	63	29	245.0	3.1E+12	54	26	1.0E+02	7.1E+04	4.3E+03	1.1E+03	6.8E+01	7.56	1.88
114	52	29	14	108.0	1.3E+13	89	39	9.1E+02	2.6E+05	5.1E+04	4.2E+03	8.2E+02	7.43	1.84
116	52	19	9	90.0	1.9E+13	102	44	9.0E+03	6.8E+05	2.7E+05	1.1E+04	4.3E+03	7.17	1.78
117	52	18	8	85.0	1.9E+13	103	45	3.7E+03	3.5E+05	1.1E+05	5.6E+03	1.8E+03	7.05	1.75
118	52	13	6	66.0	1.9E+13	110	46	5.2E+05	1.1E+06	7.1E+05	1.7E+04	1.1E+04	6.93	1.72
110	54	54	26	195.0	3.9E+12	58	28	3.1E-01	2.9E+00	4.4E-01	5.3E-02	7.6E-03	7.97	1.98
113	54	58	28	210.0	3.1E+12	58	28	2.7E+00	3.0E+03	6.4E+02	5.5E+01	1.2E+01	7.56	1.88
114	54	58	28	250.0	3.1E+12	58	28	1.0E+01	2.4E+04	1.0E+02	4.4E+02	1.9E+00	7.43	1.84
115	54	58	28	250.0	3.1E+12	60	28	1.8E+01	2.1E+04	6.3E+00	4.0E+02	1.2E-01	7.30	1.81
116	54	31	15	150.0	1.1E+13	90	40	5.9E+01	4.9E+04	3.8E+03	9.2E+02	7.1E+01	7.17	1.78
117	54	28	14	115.0	1.3E+13	92	42	6.1E+01	1.9E+05	4.5E+04	3.6E+03	8.4E+02	7.05	1.75
118	54	29	14	135.0	1.3E+13	93	41	2.3E+02	2.0E+05	2.1E+04	3.7E+03	3.9E+02	6.93	1.72
119	54	27	13	105.0	1.4E+13	95	42	3.5E+02	1.4E+05	7.3E+04	2.6E+03	1.4E+03	6.82	1.69
120	54	18	8	70.0	1.9E+13	106	46	2.4E+03	5.4E+05	3.1E+05	1.0E+04	5.7E+03	6.71	1.66
121	54	16	8	80.0	1.9E+13	109	47	2.4E+03	5.6E+05	4.4E+05	1.0E+04	8.3E+03	6.60	1.64
114	55	58	28	230.0	3.1E+12	58	28	5.7E-01	9.0E+01	1.6E+00	1.6E+00	2.8E-02	7.43	1.84
116	55	64	30	265.0	3.0E+12	58	28	7.0E-01	1.1E+02	3.8E+00	1.9E+00	6.7E-02	7.17	1.78
117	55	64	30	265.0	3.0E+12	58	28	8.4E+00	2.7E+02	6.5E+01	4.9E+00	1.2E+00	7.05	1.75
120	55	16	8	85.0	1.9E+13	107	47	6.1E+01	2.6E+04	3.9E+03	4.7E+02	7.0E+01	6.71	1.66
121	55	18	8	78.0	1.9E+13	107	47	1.6E+02	1.6E+05	5.3E+04	2.8E+03	9.5E+02	6.60	1.64
122	55	10	5	54.0	2.0E+13	116	50	2.1E+01	1.1E+05	4.7E+04	1.9E+03	8.4E+02	6.49	1.61
123	55	18	8	78.0	1.9E+13	109	47	3.5E+02	2.9E+05	1.2E+05	5.3E+03	2.2E+03	6.38	1.58

Isotope		Primary beam				Target			1+ intensity (pps)		Accelerated intensity (pps)		E(AMeV)	
A	Z	Ap	Zp	Ep (MeV)	Intensity (pps)	At	Zt	T1/2(s)	Max	Min	Max	Min	Max	Min
124	55	11	5	45.0	2.0E+13	116	50	3.1E+01	1.5E+05	3.4E+04	2.7E+03	6.1E+02	6.28	1.56
125	55	19	9	75.0	1.9E+13	110	46	2.7E+03	3.2E+05	2.2E+05	5.7E+03	3.9E+03	6.18	1.53
126	55	14	7	65.0	1.9E+13	116	48	9.8E+01	1.7E+05	5.1E+04	3.1E+03	9.2E+02	6.08	1.51
128	55	10	5	55.0	2.0E+13	122	50	2.2E+02	2.0E+05	2.9E+04	3.6E+03	5.3E+02	5.90	1.46
119	56	64	30	265.0	3.0E+12	58	28	5.4E+00	2.8E+01	8.0E-01	5.0E-01	1.4E-02	7.55	1.87
120	56	64	30	265.0	3.0E+12	58	28	2.4E+01	2.2E+02	6.0E+00	3.9E+00	1.1E-01	7.43	1.84
122	56	19	9	86.0	1.9E+13	107	47	1.2E+02	7.1E+03	9.1E+02	1.3E+02	1.6E+01	7.19	1.78
124	56	19	9	75.0	1.9E+13	109	47	6.6E+02	4.8E+04	2.1E+04	8.6E+02	3.8E+02	6.96	1.73
125	56	64	28	255.0	3.1E+12	64	28	2.1E+02	1.8E+03	3.5E+00	3.3E+01	6.3E-02	6.85	1.70
126	56	16	8	67.0	1.9E+13	114	48	6.0E+03	2.8E+05	1.1E+05	5.0E+03	1.9E+03	6.74	1.67
128	56	12	6	83.0	1.9E+13	120	50	2.1E+05	3.0E+05	5.9E+04	5.4E+03	1.1E+03	6.53	1.62
121	57	32	16	145.0	9.4E+12	92	42	5.3E+00	2.6E+01	4.9E+00	4.7E-01	8.8E-02	7.30	1.81
122	57	40	20	190.0	6.3E+12	92	42	8.7E+00	1.5E+01	2.0E+00	2.6E-01	3.6E-02	7.19	1.78
123	57	40	20	184.0	6.3E+12	92	42	1.7E+01	5.9E+01	3.1E+00	1.1E+00	5.6E-02	7.07	1.75
124	57	64	30	260.0	3.0E+12	64	30	2.9E+01	1.4E+03	5.5E+02	2.5E+01	9.8E+00	6.96	1.73
125	57	16	8	79.0	1.9E+13	112	50	6.5E+01	2.7E+04	1.5E+04	4.9E+02	2.7E+02	6.85	1.70
126	57	14	7	68.0	1.9E+13	116	50	5.4E+01	2.0E+04	5.1E+03	3.7E+02	9.1E+01	6.74	1.67
128	57	16	8	73.0	1.9E+13	115	49	3.1E+02	8.3E+04	3.1E+04	1.5E+03	5.5E+02	6.53	1.62
129	57	14	7	77.0	1.9E+13	120	50	7.0E+02	4.3E+05	2.5E+05	7.8E+03	4.5E+03	6.43	1.59
130	57	10	5	51.0	2.0E+13	124	52	5.2E+02	4.3E+05	1.5E+05	7.8E+03	2.6E+03	6.33	1.57
131	57	14	7	70.0	1.9E+13	122	50	3.5E+03	7.6E+05	5.4E+05	1.4E+04	9.6E+03	6.24	1.55
132	57	10	5	45.0	2.0E+13	126	52	1.7E+04	9.0E+05	3.6E+05	1.6E+04	6.4E+03	6.14	1.52
134	57	10	5	44.0	2.0E+13	128	52	3.9E+02	2.7E+05	5.6E+04	4.8E+03	1.0E+03	5.96	1.48
124	58	64	30	260.0	3.0E+12	64	30	9.1E+00	3.3E+02	5.4E+01	5.9E+00	9.7E-01	6.96	1.73
125	58	36	18	175.0	9.4E+12	94	42	9.3E+00	1.3E+03	1.9E+02	2.4E+01	3.4E+00	6.85	1.70
126	58	35	17	182.0	9.4E+12	96	44	5.1E+01	9.1E+03	2.0E+03	1.6E+02	3.6E+01	6.74	1.67
127	58	32	16	155.0	9.4E+12	100	42	2.9E+01	3.6E+03	5.7E+02	6.5E+01	1.0E+01	6.63	1.65
128	58	16	8	90.0	1.9E+13	116	50	2.4E+02	6.8E+04	2.3E+04	1.2E+03	4.1E+02	6.53	1.62
129	58	16	8	70.0	1.9E+13	116	50	2.1E+02	5.5E+04	3.1E+04	9.9E+02	5.6E+02	6.43	1.59
130	58	36	16	143.0	9.4E+12	98	42	1.4E+03	5.1E+04	1.8E+04	9.2E+02	3.3E+02	6.33	1.57
131	58	16	8	70.0	1.9E+13	119	50	6.1E+02	1.0E+05	6.2E+04	1.9E+03	1.1E+03	6.24	1.55
132	58	16	8	80.0	1.9E+13	120	50	1.3E+04	5.5E+05	4.1E+05	9.8E+03	7.5E+03	6.14	1.52
125	59	64	30	260.0	3.0E+12	64	30	3.3E+00	5.0E+01	5.3E+00	9.0E-01	9.5E-02	6.85	1.70
126	59	40	20	184.0	6.3E+12	92	42	3.1E+00	1.0E+02	1.5E+00	1.8E+00	2.6E-02	6.74	1.67
127	59	35	17	164.0	9.4E+12	96	44	4.2E+00	1.5E+03	3.3E+02	2.7E+01	5.9E+00	6.63	1.65
128	59	40	20	170.0	6.3E+12	92	42	2.8E+00	1.3E+03	3.6E+02	2.4E+01	6.4E+00	6.53	1.62
129	59	40	20	180.0	6.3E+12	94	42	3.0E+01	3.6E+03	9.6E+02	6.6E+01	1.7E+01	6.43	1.59
130	59	28	14	160.0	1.3E+13	110	48	4.0E+01	5.2E+03	2.1E+03	9.3E+01	3.7E+01	6.33	1.57
131	59	19	9	93.0	1.9E+13	116	50	9.0E+01	3.8E+04	9.0E+03	6.8E+02	1.6E+02	6.24	1.55
132	59	19	9	87.0	1.9E+13	117	50	8.9E+01	4.2E+04	1.6E+04	7.5E+02	2.9E+02	6.14	1.52
133	59	19	9	72.0	1.9E+13	118	50	3.9E+02	5.0E+04	2.8E+04	9.1E+02	5.0E+02	6.05	1.50
134	59	19	9	76.0	1.9E+13	119	50	6.6E+02	9.5E+04	7.0E+04	1.7E+03	1.3E+03	5.96	1.48
135	59	19	9	91.0	1.9E+13	120	50	1.4E+03	8.5E+04	6.4E+04	1.5E+03	1.1E+03	5.87	1.46

Isotope		Primary beam				Target			1+ intensity (pps)		Accelerated intensity (pps)		E(AMeV)	
A	Z	Ap	Zp	Ep (MeV)	Intensity (pps)	At	Zt	T1/2(s)	Max	Min	Max	Min	Max	Min
136	59	16	8	64.0	1.9E+13	123	51	7.9E+02	5.6E+04	3.3E+04	1.0E+03	6.0E+02	5.79	1.44
137	59	19	9	80.0	1.9E+13	122	50	4.6E+03	1.4E+05	1.3E+05	2.5E+03	2.3E+03	5.70	1.41
129	60	40	20	164.0	6.3E+12	92	42	4.9E+00	7.7E+02	4.1E+02	1.4E+01	7.3E+00	7.09	1.76
130	60	40	20	180.0	6.3E+12	94	42	2.1E+01	3.3E+03	9.7E+02	5.9E+01	1.7E+01	6.98	1.73
131	60	32	16	170.0	9.4E+12	106	48	3.3E+01	2.4E+03	2.7E+01	4.4E+01	4.9E-01	6.87	1.70
132	60	32	16	152.0	9.4E+12	104	46	9.4E+01	1.5E+04	4.0E+03	2.8E+02	7.2E+01	6.77	1.68
133	60	32	16	152.0	9.4E+12	105	46	7.0E+01	9.2E+03	3.8E+03	1.7E+02	6.8E+01	6.67	1.65
134	60	28	14	125.0	1.3E+13	110	46	5.1E+02	4.2E+04	1.1E+04	7.6E+02	2.0E+02	6.57	1.63
135	60	30	14	133.0	1.3E+13	110	46	7.4E+02	7.5E+04	3.3E+04	1.3E+03	5.9E+02	6.47	1.61
136	60	24	12	106.0	1.6E+13	116	48	3.0E+03	9.7E+04	6.1E+04	1.7E+03	1.1E+03	6.38	1.58
137	60	19	9	97.0	1.9E+13	123	51	2.3E+03	2.5E+05	1.7E+05	4.6E+03	3.0E+03	6.29	1.56
138	60	48	20	195.0	6.3E+12	94	40	1.8E+04	7.7E+04	1.1E+04	1.4E+03	2.0E+02	6.20	1.54
128	61	40	20	185.0	6.3E+12	92	42	1.0E+00	4.3E+00	1.9E-01	7.8E-02	3.4E-03	7.20	1.79
131	61	32	16	170.0	9.4E+12	106	48	6.3E+00	1.8E+02	7.6E-01	3.3E+00	1.4E-02	6.87	1.70
132	61	40	20	180.0	6.3E+12	96	44	6.3E+00	2.3E+03	4.9E+02	4.1E+01	8.9E+00	6.77	1.68
133	61	40	20	180.0	6.3E+12	96	44	1.5E+01	2.7E+03	1.2E+02	4.9E+01	2.2E+00	6.67	1.65
134	61	54	26	305.0	3.9E+12	92	42	2.2E+01	2.7E+02	1.1E+02	4.9E+00	2.0E+00	6.57	1.63
135	61	24	12	144.0	1.6E+13	116	50	4.9E+01	2.3E+04	2.6E+03	4.1E+02	4.7E+01	6.47	1.61
136	61	24	12	135.0	1.6E+13	116	50	1.1E+02	1.8E+04	1.7E+03	3.2E+02	3.0E+01	6.38	1.58
137	61	27	13	131.0	1.4E+13	114	48	1.2E+02	1.7E+04	3.0E+03	3.1E+02	5.4E+01	6.29	1.56
138	61	27	13	124.0	1.4E+13	116	48	1.0E+01	1.1E+04	5.5E+03	2.1E+02	9.9E+01	6.20	1.54
139	61	27	13	120.0	1.4E+13	116	48	2.5E+02	2.3E+04	1.2E+04	4.1E+02	2.2E+02	6.11	1.51
141	61	19	9	74.0	1.9E+13	126	52	1.3E+03	1.1E+05	7.0E+04	2.0E+03	1.3E+03	5.94	1.47
142	61	13	6	60.0	1.9E+13	133	55	4.1E+01	5.3E+04	1.1E+04	9.6E+02	1.9E+02	5.85	1.45
133	62	40	20	180.0	6.3E+12	96	44	2.9E+00	4.3E+02	6.9E+01	7.7E+00	1.2E+00	6.67	1.65
135	62	35	17	180.0	9.4E+12	105	46	1.0E+01	1.5E+03	2.4E+02	2.7E+01	4.3E+00	6.47	1.61
136	62	35	17	180.0	9.4E+12	105	46	4.7E+01	5.2E+03	6.0E+01	9.3E+01	1.1E+00	6.38	1.58
137	62	37	17	168.0	9.4E+12	104	46	4.5E+01	6.3E+03	2.4E+03	1.1E+02	4.4E+01	6.29	1.56
138	62	37	17	170.0	9.4E+12	104	46	1.9E+02	1.7E+04	7.6E+01	3.0E+02	1.4E+00	6.19	1.54
139	62	34	16	150.0	9.4E+12	110	46	1.5E+02	2.0E+04	7.3E+03	3.7E+02	1.3E+02	6.11	1.51
140	62	30	14	130.0	1.3E+13	114	48	8.9E+02	6.4E+04	3.4E+04	1.1E+03	6.1E+02	6.02	1.49
132	63	40	20	204.0	6.3E+12	96	44	1.0E-01	5.2E+00	4.1E-02	9.0E-02	6.0E-04	6.77	1.68
136	63	48	22	225.0	5.5E+12	92	42	3.3E+00	2.9E+03	6.6E+01	5.2E+01	1.2E+00	6.38	1.58
138	63	35	17	150.0	9.4E+12	106	48	1.2E+01	2.7E+04	1.2E+04	4.8E+02	2.2E+02	6.19	1.54
139	63	50	24	220.0	4.7E+12	92	42	1.8E+01	2.3E+04	2.2E+03	4.2E+02	4.0E+01	6.11	1.51
140	63	51	23	205.0	5.1E+12	92	42	1.5E+00	9.4E+03	5.7E+03	1.7E+02	1.0E+02	6.02	1.49
141	63	48	22	240.0	5.5E+12	99	44	4.1E+01	2.8E+04	1.4E+04	5.1E+02	2.5E+02	5.93	1.47
143	63	37	17	160.0	9.4E+12	110	46	1.6E+02	9.4E+04	2.8E+04	1.7E+03	5.0E+02	5.77	1.43
144	63	27	13	142.0	1.4E+13	122	50	1.0E+01	1.0E+05	3.4E+04	1.8E+03	6.1E+02	5.69	1.41
145	63	27	13	127.0	1.4E+13	122	50	5.1E+05	1.4E+05	3.6E+04	2.6E+03	6.5E+02	5.61	1.39
146	63	10	5	50.0	2.0E+13	140	55	4.0E+05	1.5E+05	1.5E+05	2.7E+03	2.7E+03	5.54	1.37
147	63	13	6	98.0	1.9E+13	139	57	2.1E+06	2.3E+05	5.5E+03	4.1E+03	9.8E+01	5.46	1.35
138	64	50	24	230.0	4.7E+12	92	42	4.7E+00	1.5E+03	2.0E+02	2.6E+01	3.5E+00	6.19	1.54

Isotope		Primary beam				Target			1+ intensity (pps)		Accelerated intensity (pps)		E(AMeV)	
A	Z	Ap	Zp	Ep (MeV)	Intensity (pps)	At	Zt	T1/2(s)	Max	Min	Max	Min	Max	Min
140	64	54	26	260.0	3.9E+12	92	42	1.6E+01	1.3E+03	9.6E+01	2.4E+01	1.7E+00	6.02	1.49
142	64	32	16	160.0	9.4E+12	114	50	7.0E+01	7.6E+04	4.4E+04	1.4E+03	7.9E+02	5.85	1.45
143	64	51	23	238.0	5.1E+12	97	42	3.9E+01	2.6E+04	1.2E+04	4.6E+02	2.1E+02	5.77	1.43
144	64	28	14	145.0	1.3E+13	120	50	2.7E+02	1.0E+05	1.6E+04	1.9E+03	2.9E+02	5.69	1.41
145	64	36	16	182.0	9.4E+12	114	48	1.4E+03	9.8E+04	1.5E+04	1.8E+03	2.7E+02	5.61	1.39
146	64	29	14	157.0	1.3E+13	124	50	4.2E+06	4.4E+05	1.3E+05	7.9E+03	2.3E+03	5.54	1.37
147	64	29	14	155.0	1.3E+13	124	50	1.4E+05	2.8E+05	8.0E+04	5.0E+03	1.4E+03	5.46	1.35
148	64	11	5	50.5	2.0E+13	141	59	2.4E+09	8.3E+05	3.8E+05	1.5E+04	6.8E+03	5.39	1.34
149	64	30	14	158.0	1.3E+13	124	50	8.0E+05	2.2E+05	1.2E+04	4.0E+03	2.2E+02	5.32	1.32
138	65	40	20	194.0	6.3E+12	102	46	8.0E-01	1.1E+01	1.1E+00	2.0E-01	2.0E-02	6.19	1.54
140	65	54	26	240.0	3.9E+12	92	42	2.4E+00	1.7E+02	1.8E-03	3.1E+00	3.2E-05	6.02	1.49
141	65	54	26	240.0	3.9E+12	92	42	3.5E+00	2.9E+02	9.0E+00	5.2E+00	1.6E-01	5.93	1.47
142	65	54	26	256.0	3.9E+12	92	42	6.0E-01	3.5E+02	6.1E+01	6.3E+00	1.1E+00	5.85	1.45
143	65	54	26	240.0	3.9E+12	92	42	1.2E+01	1.1E+04	2.7E+03	2.0E+02	4.9E+01	5.77	1.43
144	65	35	17	159.0	9.4E+12	112	50	1.0E+00	1.2E+03	1.9E+02	2.2E+01	3.4E+00	5.69	1.41
145	65	32	16	175.0	9.4E+12	118	50	1.2E+03	9.0E+04	1.8E+04	1.6E+03	3.3E+02	5.61	1.39
146	65	31	15	150.0	1.1E+13	120	50	8.0E+00	3.8E+04	1.1E+04	6.9E+02	1.9E+02	5.54	1.37
147	65	31	15	152.0	1.1E+13	120	50	5.9E+03	1.1E+05	8.7E+03	2.0E+03	1.6E+02	5.46	1.35
149	65	27	13	150.0	1.4E+13	128	52	1.5E+04	3.5E+05	8.4E+04	6.3E+03	1.5E+03	5.32	1.32
150	65	31	15	160.0	1.1E+13	124	50	1.3E+04	1.7E+05	5.2E+03	3.0E+03	9.3E+01	5.25	1.30
151	65	27	13	150.0	1.4E+13	130	52	6.3E+04	3.4E+05	1.1E+05	6.0E+03	1.9E+03	5.18	1.28
152	65	27	13	155.0	1.4E+13	130	52	6.3E+04	1.6E+05	1.3E+03	2.9E+03	2.3E+01	5.11	1.27
154	65	36	16	175.0	9.4E+12	124	50	7.7E+04	3.5E+04	1.2E+04	6.3E+02	2.1E+02	4.98	1.23
155	65	36	16	160.0	9.4E+12	124	50	4.6E+05	1.9E+04	5.8E+03	3.5E+02	1.0E+02	4.91	1.22
140	66	54	26	315.0	3.9E+12	92	42	7.0E-01	2.7E+01	1.6E+00	4.8E-01	2.8E-02	6.60	1.64
141	66	54	26	274.0	3.9E+12	92	42	9.0E-01	2.7E+02	2.2E+01	4.8E+00	3.8E-01	6.51	1.61
142	66	54	26	260.0	3.9E+12	92	42	2.3E+00	1.8E+03	3.5E+02	3.2E+01	6.3E+00	6.42	1.59
143	66	54	26	240.0	3.9E+12	92	42	5.6E+00	7.7E+03	2.7E+03	1.4E+02	4.8E+01	6.33	1.57
144	66	54	26	226.0	3.9E+12	92	42	9.1E+00	1.0E+04	7.3E+02	1.8E+02	1.3E+01	6.24	1.55
146	66	58	28	260.0	3.1E+12	92	42	3.3E+01	2.1E+04	9.8E+03	3.8E+02	1.8E+02	6.07	1.51
148	66	58	28	307.0	3.1E+12	93	41	2.0E+02	8.8E+01	2.7E+00	1.6E+00	4.9E-02	5.91	1.47
149	66	32	16	163.0	9.4E+12	122	50	2.5E+02	8.1E+04	1.8E+04	1.5E+03	3.3E+02	5.83	1.45
150	66	32	16	163.0	9.4E+12	124	50	4.3E+02	1.9E+05	7.2E+04	3.5E+03	1.3E+03	5.76	1.43
151	66	34	16	175.0	9.4E+12	122	50	1.1E+03	1.3E+05	5.1E+03	2.3E+03	9.1E+01	5.68	1.41
152	66	16	8	115.0	1.9E+13	141	59	8.6E+03	2.6E+05	4.1E+04	4.7E+03	7.3E+02	5.61	1.39
142	67	40	20	198.0	6.3E+12	106	48	4.0E-01	3.2E+01	2.5E+00	5.8E-01	4.2E-02	6.42	1.59
144	67	54	26	226.0	3.9E+12	92	42	7.0E-01	5.9E+02	3.7E+01	1.1E+01	6.5E-01	6.24	1.55
147	67	58	28	260.0	3.1E+12	92	42	5.8E+00	9.8E+03	3.0E+03	1.8E+02	5.3E+01	5.99	1.49
148	67	10	5	101.0	2.0E+13	144	62	2.2E+00	1.3E+04	4.4E+03	2.4E+02	7.9E+01	5.91	1.47
149	67	40	18	232.0	9.4E+12	112	50	2.1E+01	1.7E+00	1.7E+00	3.1E-02	3.1E-02	5.83	1.45
150	67	16	8	165.0	1.9E+13	141	59	7.7E+01	2.6E+04	1.0E+03	4.8E+02	1.9E+01	5.76	1.43
152	67	37	17	187.0	9.4E+12	120	50	1.6E+02	7.1E+04	3.2E+03	1.3E+03	5.7E+01	5.61	1.39
153	67	37	17	177.0	9.4E+12	120	50	1.2E+02	8.5E+04	6.6E+02	1.5E+03	1.2E+01	5.53	1.37

Isotope		Primary beam				Target			1+ intensity (pps)		Accelerated intensity (pps)		E(AMeV)	
A	Z	Ap	Zp	Ep (MeV)	Intensity (pps)	At	Zt	T1/2(s)	Max	Min	Max	Min	Max	Min
156	67	14	7	96.0	1.9E+13	148	60	3.4E+03	8.0E+05	2.5E+05	1.4E+04	4.5E+03	5.32	1.32
158	67	11	5	60.0	2.0E+13	152	62	6.8E+02	1.0E+06	4.8E+05	1.8E+04	8.6E+03	5.19	1.29
159	67	11	5	60.0	2.0E+13	152	62	2.0E+03	4.9E+05	1.5E+04	8.9E+03	2.7E+02	5.12	1.27
160	67	7	3	56.0	2.3E+13	158	64	1.5E+03	1.2E+06	2.2E+02	2.1E+04	3.9E+00	5.06	1.25
161	67	7	3	56.0	2.3E+13	160	64	8.9E+03	1.9E+06	9.2E+03	3.4E+04	1.7E+02	5.00	1.24
145	68	92	42	383.0	2.1E+12	58	28	9.0E-01	9.6E+00	1.5E+00	1.7E-01	2.7E-02	6.16	1.53
146	68	58	28	280.0	3.1E+12	92	42	1.7E+00	6.8E+02	1.2E+02	1.2E+01	2.1E+00	6.07	1.51
147	68	58	28	260.0	3.1E+12	92	42	2.5E+00	2.8E+03	1.0E+03	5.0E+01	1.8E+01	5.99	1.49
148	68	58	28	260.0	3.1E+12	92	42	4.6E+00	3.8E+03	1.1E+02	6.9E+01	2.0E+00	5.91	1.47
149	68	12	6	135.0	1.9E+13	144	62	4.0E+00	1.6E+04	5.2E+02	3.0E+02	9.3E+00	5.83	1.45
150	68	60	28	255.0	3.1E+12	94	42	1.9E+01	1.9E+04	4.3E+03	3.4E+02	7.7E+01	5.76	1.43
151	68	40	18	197.0	9.4E+12	116	50	2.4E+01	2.3E+04	8.3E+02	4.1E+02	1.5E+01	5.68	1.41
152	68	40	18	180.0	9.4E+12	116	50	1.0E+01	2.4E+04	1.3E+03	4.3E+02	2.4E+01	5.61	1.39
154	68	40	18	185.0	9.4E+12	118	50	2.2E+02	7.5E+04	2.6E+03	1.4E+03	4.6E+01	5.46	1.35
155	68	12	6	101.0	1.9E+13	148	62	3.2E+02	3.5E+05	3.8E+04	6.2E+03	6.9E+02	5.39	1.34
156	68	40	18	170.0	9.4E+12	120	50	1.2E+03	1.3E+05	5.3E+04	2.4E+03	9.5E+02	5.32	1.32
157	68	40	18	160.0	9.4E+12	122	50	1.1E+03	1.5E+05	8.5E+04	2.8E+03	1.5E+03	5.25	1.30
158	68	40	18	175.0	9.4E+12	122	50	8.2E+03	1.4E+05	1.5E+04	2.5E+03	2.7E+02	5.19	1.29
159	68	48	20	215.0	6.3E+12	116	48	2.2E+03	9.8E+04	9.1E+03	1.8E+03	1.6E+02	5.12	1.27
146	69	58	28	287.0	3.1E+12	92	42	2.4E-01	4.0E+00	8.0E-03	7.1E-02	1.3E-04	6.07	1.51
147	69	58	28	260.0	3.1E+12	92	42	5.8E-01	7.3E+01	7.0E+00	1.3E+00	1.2E-01	5.99	1.49
149	69	58	28	259.0	3.1E+12	94	42	9.0E-01	4.9E+02	4.8E+01	8.9E+00	8.4E-01	5.83	1.45
150	69	60	28	250.0	3.1E+12	92	42	3.0E+00	8.8E+02	5.4E+01	1.6E+01	9.6E-01	5.75	1.43
152	69	60	28	250.0	3.1E+12	94	42	8.0E+00	3.3E+03	4.8E+01	6.0E+01	8.6E-01	5.60	1.39
153	69	64	30	285.0	3.0E+12	92	42	1.5E+00	3.0E+03	4.2E+00	5.3E+01	7.4E-02	5.53	1.37
155	69	14	7	70.0	1.9E+13	144	62	2.2E+01	1.8E+05	2.6E+04	3.2E+03	4.6E+02	5.39	1.34
157	69	51	23	220.0	5.1E+12	110	46	2.2E+02	4.6E+04	1.2E+04	8.2E+02	2.1E+02	5.25	1.30
158	69	51	23	220.0	5.1E+12	110	46	2.4E+02	2.3E+04	5.3E+01	4.1E+02	9.6E-01	5.19	1.29
159	69	22	10	120.0	1.9E+13	141	59	5.5E+02	2.9E+05	7.6E+04	5.2E+03	1.4E+03	5.12	1.27
160	69	37	17	170.0	9.4E+12	128	52	5.6E+02	1.9E+05	5.9E+04	3.4E+03	1.1E+03	5.06	1.25
161	69	37	17	167.0	9.4E+12	128	52	1.8E+03	1.4E+05	1.7E+04	2.5E+03	3.1E+02	5.00	1.24
162	69	37	17	166.0	9.4E+12	130	52	1.3E+03	2.0E+05	1.1E+05	3.7E+03	2.1E+03	4.94	1.22
163	69	37	17	165.0	9.4E+12	130	52	6.5E+03	1.2E+05	7.7E+03	2.1E+03	1.4E+02	4.88	1.21
151	70	58	28	252.0	3.1E+12	96	44	1.6E+00	2.0E+03	4.9E+02	3.7E+01	8.7E+00	5.68	1.41
153	70	64	30	285.0	3.0E+12	92	42	4.2E+00	3.5E+03	8.2E+02	6.3E+01	1.5E+01	5.53	1.37
154	70	54	26	253.8	3.9E+12	106	48	4.1E-01	4.0E+02	2.7E+00	7.1E+00	4.6E-02	5.46	1.35
155	70	58	28	270.0	3.1E+12	102	46	1.8E+00	3.6E+02	9.4E+01	6.5E+00	1.7E+00	5.39	1.34
156	70	16	8	102.0	1.9E+13	144	62	2.6E+01	2.1E+05	4.7E+04	3.8E+03	8.5E+02	5.32	1.32
157	70	16	8	85.0	1.9E+13	144	62	3.9E+01	2.3E+05	1.4E+05	4.1E+03	2.5E+03	5.25	1.30
158	70	40	18	175.0	9.4E+12	122	52	8.9E+01	7.9E+04	3.8E+04	1.4E+03	6.9E+02	5.19	1.29
160	70	16	8	95.0	1.9E+13	148	62	2.9E+02	4.7E+05	2.7E+05	8.5E+03	4.8E+03	5.06	1.25
161	70	16	8	82.0	1.9E+13	148	62	2.5E+02	2.2E+05	5.6E+04	3.9E+03	1.0E+03	5.00	1.24
162	70	50	22	200.0	5.5E+12	116	48	1.1E+03	1.0E+05	5.1E+04	1.8E+03	9.2E+02	4.94	1.22

Isotope		Primary beam				Target			1+ intensity (pps)		Accelerated intensity (pps)		E(AMeV)	
A	Z	Ap	Zp	Ep (MeV)	Intensity (pps)	At	Zt	T1/2(s)	Max	Min	Max	Min	Max	Min
164	70	30	14	150.0	1.3E+13	138	56	4.5E+03	2.1E+05	2.3E+04	3.8E+03	4.1E+02	4.82	1.19
151	71	58	28	266.0	3.1E+12	96	44	8.1E-02	3.4E+00	4.6E-02	5.9E-02	6.4E-04	6.20	1.54
153	71	54	26	245.0	3.9E+12	102	46	9.0E-01	3.2E+02	4.5E+01	5.7E+00	7.9E-01	6.04	1.50
154	71	54	26	245.0	3.9E+12	102	46	1.0E+00	1.3E+02	1.0E+01	2.4E+00	1.8E-01	5.97	1.48
155	71	58	28	270.0	3.1E+12	102	46	6.9E-02	1.9E+01	1.5E+00	3.2E-01	1.9E-02	5.89	1.46
156	71	58	28	270.0	3.1E+12	102	46	4.9E-01	1.0E+03	6.8E+01	1.9E+01	1.2E+00	5.81	1.44
157	71	58	28	270.0	3.1E+12	102	46	6.8E+00	4.5E+03	1.9E+01	8.1E+01	3.3E-01	5.74	1.42
158	71	19	9	166.0	1.9E+13	147	62	1.1E+01	6.0E+03	5.2E+03	1.1E+02	9.4E+01	5.67	1.41
159	71	19	9	105.0	1.9E+13	144	62	1.2E+01	1.2E+05	5.4E+04	2.1E+03	9.8E+02	5.60	1.39
160	71	19	9	85.0	1.9E+13	144	62	3.6E+01	1.0E+05	6.3E+04	1.8E+03	1.1E+03	5.53	1.37
161	71	28	14	175.0	1.3E+13	139	57	7.7E+01	1.0E+05	1.7E+04	1.9E+03	3.0E+02	5.46	1.35
162	71	19	9	112.0	1.9E+13	148	62	8.2E+01	3.1E+05	1.5E+05	5.6E+03	2.7E+03	5.39	1.34
163	71	19	9	92.0	1.9E+13	148	62	2.4E+02	3.5E+05	2.2E+05	6.4E+03	3.9E+03	5.33	1.32
164	71	14	7	79.0	1.9E+13	155	64	1.9E+02	4.9E+05	3.3E+05	8.8E+03	5.9E+03	5.26	1.30
165	71	30	14	135.0	1.3E+13	139	57	6.4E+02	2.9E+05	1.8E+05	5.2E+03	3.3E+03	5.20	1.29
166	71	12	6	90.0	1.9E+13	159	65	1.6E+02	4.8E+05	5.2E+04	8.6E+03	9.3E+02	5.14	1.27
167	71	19	9	87.0	1.9E+13	152	62	3.1E+03	1.8E+05	6.3E+04	3.2E+03	1.1E+03	5.08	1.26
168	71	13	6	62.0	1.9E+13	159	65	3.3E+02	5.5E+05	7.9E+04	1.0E+04	1.4E+03	5.02	1.24
169	71	19	9	85.0	1.9E+13	154	62	1.2E+05	1.0E+05	2.7E+04	1.8E+03	4.9E+02	4.96	1.23
170	71	11	5	63.0	2.0E+13	164	66	1.7E+05	1.1E+06	2.2E+05	2.0E+04	4.0E+03	4.90	1.21
171	71	19	9	103.0	1.9E+13	160	64	7.1E+05	1.7E+04	8.6E+03	3.1E+02	1.5E+02	4.84	1.20
162	72	40	20	175.0	6.3E+12	126	52	3.9E+01	1.0E+01	2.3E+00	1.9E-01	4.1E-02	5.39	1.34
163	72	40	20	175.0	6.3E+12	126	52	4.0E+01	2.8E+00	5.5E-02	5.0E-02	9.8E-04	5.33	1.32
164	72	20	10	117.0	1.9E+13	148	62	1.1E+02	1.5E+02	3.2E+01	2.7E+00	5.7E-01	5.26	1.30
165	72	40	20	195.0	6.3E+12	130	52	7.6E+01	2.8E+01	6.3E+00	5.0E-01	1.1E-01	5.20	1.29
166	72	20	10	105.0	1.9E+13	150	62	4.1E+02	1.2E+03	4.4E+02	2.1E+01	7.9E+00	5.14	1.27
167	72	14	7	95.0	1.9E+13	159	65	1.2E+02	7.5E+02	4.5E+02	1.4E+01	8.1E+00	5.08	1.26
168	72	16	8	134.0	1.9E+13	160	64	1.6E+03	1.7E+04	7.4E+03	3.1E+02	1.3E+02	5.02	1.24
169	72	16	8	134.0	1.9E+13	160	64	1.9E+02	8.0E+02	1.4E+02	1.4E+01	2.5E+00	4.96	1.23
170	72	16	8	110.0	1.9E+13	160	64	5.8E+04	3.3E+05	2.1E+05	5.9E+03	3.8E+03	4.90	1.21
171	72	16	8	90.0	1.9E+13	160	64	4.4E+04	2.8E+05	1.6E+05	5.1E+03	3.0E+03	4.84	1.20
177	79	84	38	380.0	2.4E+12	96	42	1.5E+00	7.5E+00	4.6E-01	1.3E-01	8.1E-03	4.92	1.22
179	79	35	17	164.0	9.4E+12	149	62	7.1E+00	8.0E+02	2.5E+01	1.4E+01	4.5E-01	4.81	1.19
180	79	35	17	168.0	9.4E+12	149	62	8.1E+00	9.3E+02	2.5E+02	1.7E+01	4.5E+00	4.76	1.18
181	79	35	17	164.0	9.4E+12	150	62	1.4E+01	3.1E+03	7.9E+02	5.6E+01	1.4E+01	4.71	1.18
182	79	35	17	183.0	9.4E+12	152	62	1.6E+01	2.4E+03	3.6E+02	4.2E+01	6.4E+00	4.65	1.18
183	79	29	14	140.0	1.3E+13	159	65	4.3E+01	2.5E+04	1.5E+04	4.4E+02	2.7E+02	4.60	1.18
184	79	19	9	110.0	1.9E+13	170	70	2.1E+01	3.6E+04	2.5E+04	6.5E+02	4.5E+02	4.55	1.18
185	79	19	9	97.0	1.9E+13	170	70	2.6E+02	1.8E+05	7.2E+04	3.2E+03	1.3E+03	4.50	1.18
186	79	19	9	95.0	1.9E+13	172	70	6.4E+02	2.5E+05	2.0E+05	4.6E+03	3.6E+03	4.46	1.18
187	79	19	9	88.0	1.9E+13	172	70	5.0E+02	1.4E+05	4.9E+04	2.6E+03	8.8E+02	4.41	1.18
188	79	19	9	90.0	1.9E+13	173	70	5.3E+02	9.0E+04	3.0E+04	1.6E+03	5.4E+02	4.36	1.18
189	79	12	6	70.0	1.9E+13	181	73	1.7E+03	5.3E+05	4.8E+04	9.5E+03	8.6E+02	4.32	1.18

Isotope		Primary beam				Target			1+ intensity (pps)		Accelerated intensity (pps)		E(AMeV)	
A	Z	Ap	Zp	Ep (MeV)	Intensity (pps)	At	Zt	T1/2(s)	Max	Min	Max	Min	Max	Min
190	79	11	5	86.0	2.0E+13	186	74	2.6E+03	9.0E+05	5.4E+05	1.6E+04	9.8E+03	4.27	1.18
193	79	11	5	68.0	2.0E+13	186	74	6.4E+04	4.2E+04	2.2E+02	7.5E+02	4.0E+00	4.14	1.18
179	80	90	40	380.0	2.3E+12	90	40	1.1E+00	1.7E+00	3.5E-02	3.1E-02	6.2E-04	4.81	1.19
181	80	40	18	175.0	9.4E+12	144	62	3.6E+00	3.5E+02	1.5E+02	6.3E+00	2.7E+00	4.71	1.18
183	80	32	16	159.0	9.4E+12	155	64	9.4E+00	3.3E+03	5.4E+02	5.9E+01	9.7E+00	4.60	1.18
184	80	28	14	143.0	1.3E+13	161	66	3.1E+01	4.1E+04	2.3E+04	7.3E+02	4.2E+02	4.55	1.18
185	80	28	14	135.0	1.3E+13	161	66	4.9E+01	5.9E+04	1.8E+04	1.1E+03	3.3E+02	4.50	1.18
186	80	28	14	135.0	1.3E+13	162	66	8.3E+01	9.7E+04	2.6E+04	1.7E+03	4.7E+02	4.46	1.18
187	80	28	14	135.0	1.3E+13	163	66	1.1E+02	8.6E+04	1.3E+04	1.6E+03	2.3E+02	4.41	1.18
188	80	16	8	85.0	1.9E+13	176	72	2.0E+02	3.2E+05	2.4E+05	5.8E+03	4.3E+03	4.36	1.18
189	80	19	9	100.0	1.9E+13	175	71	4.6E+02	3.9E+05	2.1E+05	7.0E+03	3.8E+03	4.32	1.18
190	80	14	7	94.0	1.9E+13	181	73	1.2E+03	3.0E+05	1.3E+04	5.5E+03	2.4E+02	4.27	1.18
191	80	22	10	120.0	1.9E+13	174	70	2.9E+03	3.0E+05	1.3E+05	5.3E+03	2.3E+03	4.23	1.18
192	80	13	6	105.0	1.9E+13	186	74	1.7E+04	7.2E+05	1.3E+05	1.3E+04	2.4E+03	4.18	1.18
193	80	13	6	92.0	1.9E+13	186	74	1.4E+04	7.0E+05	2.9E+04	1.3E+04	5.2E+02	4.14	1.18
177	81	78	36	370.0	2.5E+12	102	46	3.2E+00	8.5E+00	3.7E-01	1.5E-01	6.5E-03	4.92	1.22
178	81	78	36	340.0	2.5E+12	102	46	2.6E-01	1.3E+01	9.4E-01	2.3E-01	1.5E-02	4.86	1.21
179	81	40	20	232.0	6.3E+12	144	62	2.7E-01	3.6E+00	1.6E+00	6.4E-02	2.6E-02	4.81	1.19
180	81	92	42	420.0	2.1E+12	90	40	1.5E+00	1.9E+01	1.7E+00	3.5E-01	3.1E-02	4.76	1.18
181	81	92	42	420.0	2.1E+12	90	40	3.2E+00	1.3E+00	1.3E+00	2.3E-02	2.3E-02	4.70	1.18
183	81	42	20	200.0	6.3E+12	144	62	6.9E+00	2.2E+03	3.9E+00	3.9E+01	6.9E-02	4.60	1.18
184	81	14	7	177.0	1.9E+13	180	74	9.7E+00	1.7E+03	5.4E+00	3.0E+01	9.8E-02	4.55	1.18
185	81	35	17	166.0	9.4E+12	154	64	2.0E+01	1.0E+04	2.5E+03	1.8E+02	4.4E+01	4.50	1.18
186	81	48	22	238.0	5.5E+12	142	60	4.0E+01	4.7E+03	6.4E+02	8.5E+01	1.1E+01	4.46	1.18
187	81	32	16	154.0	9.4E+12	159	65	5.1E+01	2.5E+04	4.2E+03	4.6E+02	7.5E+01	4.41	1.18
188	81	16	8	143.0	1.9E+13	181	73	7.1E+01	8.6E+04	2.7E+04	1.5E+03	4.8E+02	4.36	1.18
189	81	28	14	138.0	1.3E+13	165	67	1.4E+02	7.2E+04	2.0E+04	1.3E+03	3.7E+02	4.32	1.18
190	81	35	17	167.0	9.4E+12	160	64	1.6E+02	5.5E+04	2.2E+04	1.0E+03	3.9E+02	4.27	1.18
191	81	23	11	132.0	1.7E+13	174	70	1.2E+03	2.7E+05	2.0E+05	4.9E+03	3.6E+03	4.23	1.18
192	81	16	8	100.0	1.9E+13	181	73	5.8E+02	4.3E+05	2.2E+05	7.8E+03	4.0E+03	4.18	1.18
193	81	23	11	129.0	1.7E+13	176	70	1.3E+03	3.2E+05	2.1E+05	5.7E+03	3.7E+03	4.14	1.18
194	81	18	8	93.0	1.9E+13	181	73	2.0E+03	4.6E+05	2.9E+05	8.2E+03	5.3E+03	4.10	1.18
195	81	15	7	105.0	1.9E+13	186	74	4.2E+03	4.4E+05	4.7E+04	8.0E+03	8.5E+02	4.06	1.18
181	82	92	42	400.0	2.1E+12	90	40	4.5E-02	1.8E+00	4.7E-03	3.0E-02	5.5E-05	4.70	1.18
182	82	42	20	213.0	6.3E+12	144	62	6.0E-02	2.3E+00	3.7E-01	3.9E-02	4.8E-03	4.65	1.18
183	82	40	20	194.0	6.3E+12	147	62	5.4E-01	5.4E+01	2.5E-01	9.6E-01	4.4E-03	4.60	1.18
184	82	40	20	190.0	6.3E+12	147	62	4.9E-01	7.9E+01	4.8E+00	1.4E+00	8.2E-02	4.55	1.18
185	82	82	36	367.0	2.5E+12	106	46	6.3E+00	1.3E+02	7.2E+00	2.3E+00	1.3E-01	4.50	1.18
186	82	36	18	175.0	9.4E+12	154	64	4.8E+00	1.9E+03	3.3E+01	3.3E+01	6.0E-01	4.46	1.18
187	82	36	18	176.0	9.4E+12	155	64	1.5E+01	4.4E+03	5.8E+00	7.9E+01	1.0E-01	4.41	1.18
188	82	28	14	143.0	1.3E+13	164	68	2.6E+01	2.6E+04	1.5E+01	4.7E+02	2.7E-01	4.36	1.18
189	82	29	14	145.0	1.3E+13	164	68	5.1E+01	3.9E+04	6.4E+03	7.0E+02	1.2E+02	4.32	1.18
190	82	28	14	143.0	1.3E+13	166	68	7.1E+01	5.1E+04	1.5E+04	9.2E+02	2.8E+02	4.27	1.18

Isotope		Primary beam				Target			1+ intensity (pps)		Accelerated intensity (pps)		E(AMeV)	
A	Z	Ap	Zp	Ep (MeV)	Intensity (pps)	At	Zt	T1/2(s)	Max	Min	Max	Min	Max	Min
191	82	20	10	120.0	1.9E+13	176	72	8.0E+01	1.4E+05	5.7E+04	2.5E+03	1.0E+03	4.23	1.18
193	82	16	8	103.0	1.9E+13	182	74	3.0E+02	3.6E+05	2.0E+05	6.5E+03	3.6E+03	4.14	1.18
194	82	12	6	95.0	1.9E+13	188	76	7.2E+02	7.8E+05	1.8E+05	1.4E+04	3.2E+03	4.10	1.18
195	82	6	3	95.0	2.3E+13	197	79	9.0E+02	9.4E+05	5.5E+05	1.7E+04	9.9E+03	4.06	1.18
196	82	12	6	75.0	1.9E+13	188	76	2.2E+03	4.9E+05	7.7E+03	8.9E+03	1.4E+02	4.01	1.18
197	82	18	8	110.0	1.9E+13	186	74	4.8E+02	4.8E+05	3.2E+05	8.6E+03	5.8E+03	3.97	1.18
198	82	18	8	104.0	1.9E+13	186	74	8.6E+03	4.9E+05	2.9E+05	8.8E+03	5.2E+03	3.93	1.18
199	82	13	6	81.0	1.9E+13	192	76	5.4E+03	6.8E+05	2.4E+05	1.2E+04	4.3E+03	3.89	1.18
188	83	50	24	252.0	4.7E+12	142	60	6.0E-02	3.8E+00	1.2E-01	6.5E-02	1.5E-03	4.36	1.18
191	83	52	24	235.0	4.7E+12	142	60	1.5E-01	9.6E+01	8.6E+00	1.7E+00	1.3E-01	4.23	1.18
186	84	46	22	230.0	5.5E+12	144	62	4.0E-05	1.0E+00	1.4E-01	2.4E-04	3.7E-06	4.46	1.18
187	84	46	22	222.0	5.5E+12	144	62	1.4E-03	1.4E+01	9.4E-02	7.8E-02	8.3E-05	4.41	1.18
190	84	49	22	222.0	5.5E+12	144	62	2.5E-03	2.7E+02	3.5E+00	2.2E+00	5.3E-03	4.27	1.18
193	84	32	16	169.0	9.4E+12	166	68	4.2E-01	8.2E+03	2.6E+02	1.5E+02	4.5E+00	4.14	1.18
194	84	28	14	143.0	1.3E+13	170	70	3.9E-01	3.3E+04	3.9E+03	5.8E+02	6.5E+01	4.10	1.18
195	84	40	18	189.0	9.4E+12	160	66	4.6E+00	1.8E+04	1.3E+03	3.2E+02	2.3E+01	4.06	1.18
196	84	28	14	143.0	1.3E+13	172	70	5.6E+00	1.7E+04	2.4E+03	3.0E+02	4.3E+01	4.01	1.18
198	84	29	14	148.0	1.3E+13	174	70	1.1E+02	1.0E+05	1.8E+04	1.8E+03	3.2E+02	3.93	1.18
194	85	56	26	255.0	3.9E+12	141	59	4.0E-02	2.7E+02	3.5E+00	4.6E+00	3.8E-02	4.10	1.18
197	85	82	36	362.0	2.5E+12	118	50	3.5E-01	6.2E+02	7.5E+00	1.1E+01	1.3E-01	3.97	1.18
196	86	36	18	208.0	9.4E+12	166	68	4.7E-03	3.1E+01	3.5E-01	3.4E-01	9.3E-04	4.01	1.18
197	86	36	18	186.0	9.4E+12	166	68	6.6E-02	2.2E+02	1.2E+00	3.8E+00	1.5E-02	3.97	1.18
198	86	36	18	175.0	9.4E+12	166	68	6.5E-02	1.1E+03	7.9E-01	1.8E+01	1.0E-02	3.93	1.18
202	86	16	8	110.0	1.9E+13	192	78	9.9E+00	6.2E+04	7.1E+02	1.1E+03	1.3E+01	3.78	1.18
203	86	34	16	167.0	9.4E+12	174	70	4.4E+01	3.2E+04	5.4E+02	5.8E+02	9.8E+00	3.74	1.18
204	86	50	22	228.0	5.5E+12	160	64	7.4E+01	4.3E+03	7.6E+01	7.8E+01	1.4E+00	3.71	1.18
205	86	40	18	183.0	9.4E+12	170	68	1.7E+02	4.4E+04	2.2E+03	8.0E+02	3.9E+01	3.67	1.18
206	86	14	7	87.0	1.9E+13	197	79	3.4E+02	3.7E+05	2.5E+04	6.7E+03	4.5E+02	3.63	1.18
207	86	16	8	90.0	1.9E+13	196	78	5.6E+02	2.1E+05	3.0E+04	3.8E+03	5.4E+02	3.60	1.18
208	86	12	6	80.0	1.9E+13	200	80	1.5E+03	3.2E+05	5.0E+03	5.8E+03	9.1E+01	3.57	1.18
211	86	7	3	60.0	2.3E+13	209	83	5.3E+04	9.6E+05	1.5E+04	1.7E+04	2.8E+02	3.46	1.18
212	86	9	4	52.0	2.2E+13	208	82	1.4E+03	4.4E+05	3.0E+04	7.8E+03	5.4E+02	3.43	1.18
213	86	9	4	57.0	2.2E+13	208	82	2.0E-02	7.5E+05	8.4E+02	1.2E+04	6.4E+00	3.40	1.18
214	86	9	4	51.0	2.2E+13	208	82	2.7E-07	2.1E+05	1.3E+04	3.4E-01	2.3E-03	3.37	1.18
215	86	18	8	93.0	1.9E+13	207	82	2.3E-06	7.0E+00	3.6E-02	9.7E-05	5.5E-08	3.34	1.18
216	86	18	8	92.0	1.9E+13	208	82	4.5E-05	4.3E+00	5.7E-03	1.1E-03	1.7E-07	3.31	1.18
201	87	35	17	186.0	9.4E+12	170	70	6.1E-02	9.9E+01	9.9E+01	1.7E+00	1.2E+00	3.82	1.18
203	87	40	18	205.0	9.4E+12	169	69	5.5E-01	2.9E+03	1.3E+00	5.2E+01	2.3E-02	3.74	1.18
205	87	40	18	180.0	9.4E+12	169	69	3.9E+00	1.4E+04	3.5E+01	2.6E+02	6.2E-01	3.67	1.18
208	87	18	8	130.0	1.9E+13	197	79	5.9E+01	6.3E+04	2.0E+02	1.1E+03	3.6E+00	3.57	1.18
209	87	18	8	115.0	1.9E+13	197	79	5.0E+01	1.4E+05	1.0E+03	2.5E+03	1.9E+01	3.53	1.18
210	87	18	8	100.0	1.9E+13	197	79	1.9E+02	2.4E+05	4.0E+03	4.3E+03	7.2E+01	3.50	1.18
211	87	12	6	72.0	1.9E+13	203	81	1.9E+02	4.2E+05	4.7E+04	7.6E+03	8.5E+02	3.46	1.18

Isotope		Primary beam				Target			1+ intensity (pps)		Accelerated intensity (pps)		E(AMeV)	
A	Z	Ap	Zp	Ep (MeV)	Intensity (pps)	At	Zt	T1/2(s)	Max	Min	Max	Min	Max	Min
212	87	12	6	90.0	1.9E+13	205	81	1.2E+03	3.3E+05	4.8E+03	6.0E+03	8.7E+01	3.43	1.18
213	87	12	6	72.0	1.9E+13	205	81	3.5E+01	4.3E+05	1.2E+04	7.7E+03	2.1E+02	3.40	1.18