# Fitting Tables:$^{13}$C target

## 1 $^{13}$C(d, p)$^{14}$C

| $^{13}$C(d, p)$^{14}$C Q-value 5.95, E = 10, Ex = 0.00 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E - dE | | | dE | | | Events | | | |
| run | deg | energy | channel | error | energy | channel | error | count | error | $\chi^2$/ndf | FC |
| 0200 | 25.9 | 1.5537e+01 | 3613 | 16 | 1.4054e-01 | 212 | 8.3 | 106 | 14 | 0.79 | 19786 |
| 0222 | 60.9 | 1.4508e+01 | 3371 | 0.62 | 1.4853e-01 | 196 | 4.7 | 225 | 15 | 1.2 | 411998 |
| 0223 | 65.9 | 1.4322e+01 | 3319 | 0.85 | 1.5008e-01 | 198 | 5.2 | 153 | 13 | 1 | 502661 |
| 0221 | 70.9 | 1.4130e+01 | 3282 | 0.69 | 1.5172e-01 | 198 | 4.8 | 136 | 12 | 0.9 | 475716 |

| $^{13}$C(d, p)$^{14}$C* 1st excited state Q-value 5.95, E = 10, Ex = 6.09 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E - dE | | | dE | | | Events | | | |
| run | deg | energy | channel | error | energy | channel | error | count | error | $\chi^2$/ndf | FC |
| 0200 | 25.9 | 9.3134e+00 | 2168 | 4.3 | 2.1105e-01 | 352 | 3.5 | 597 | 158 | 2 | 19786 |
| 0222 | 60.9 | 8.4935e+00 | 1969 | 0.38 | 2.2666e-01 | 333 | 3 | 510 | 23 | 1.3 | 411998 |
| 0223 | 65.9 | 8.3462e+00 | 1928 | 0.35 | 2.2974e-01 | 337 | 2.7 | 557 | 24 | 1.3 | 502661 |
| 0221 | 70.9 | 8.1954e+00 | 1900 | 0.31 | 2.3638e-01 | 338 | 2.5 | 580 | 24 | 0.9 | 475716 |

| $^{13}$C(d, p)$^{14}$C* 2nd excited state Q-value 5.95, E = 10, Ex = 6.59 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E - dE | | | dE | | | Events | | | |
| run | deg | energy | channel | error | energy | channel | error | count | error | $\chi^2$/ndf | FC |
| 0200 | 25.9 | 8.7919e+00 | 2014 | 2.4 | 2.2070e-01 | 354 | 1.6 | 621 | 74 | 1.5 | 19786 |
| 0222 | 60.9 | 7.9916e+00 | 1820 | 0.2 | 2.3753e-01 | 365 | 1.1 | 1546 | 40 | 1.1 | 411998 |
| 0223 | 65.9 | 7.8479e+00 | 1781 | 0.2 | 2.4085e-01 | 355 | 1.7 | 1801 | 43 | 1.4 | 502661 |
| 0221 | 70.9 | 7.7010e+00 | 1753 | 0.19 | 2.4802e-01 | 373 | 1.1 | 1689 | 41 | 0.98 | 475716 |

| $^{13}C(d,p)^{14}C^*$ 3rd excited state Q-value 5.95, E = 10, Ex = 6.73 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E - dE | | | dE | | | Events | | | |
| run | deg | energy | channel | error | energy | channel | error | count | error | $\chi^2$/ndf | FC |
| 0200 | 25.9 | 8.6455e+00 | | | 2.2358e-01 | | | | | | 19786 |
| 0222 | 60.9 | 7.8507e+00 | 1780 | 0.7 | 2.4079e-01 | 365 | 1.1 | 203 | 18 | 1.5 | 411998 |
| 0223 | 65.9 | 7.7081e+00 | 1743 | 0.76 | 2.4419e-01 | 368 | 5.2 | 188 | 17 | 1.1 | 502661 |
| 0221 | 70.9 | 7.5623e+00 | 1715 | 1 | 2.4777e-01 | 373 | 1.1 | 207 | 22 | 1 | 475716 |

| $^{13}C(d,p)^{14}C^*$ 4th excited state Q-value 5.95, E = 10, Ex = 6.90 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E - dE | | | dE | | | Events | | | |
| run | deg | energy | channel | error | energy | channel | error | count | error | $\chi^2$/ndf | FC |
| 0200 | 25.9 | 8.4674e+00 | | | 2.2720e-01 | | | | | | 19786 |
| 0222 | 60.9 | 7.6794e+00 | 1754 | 0.74 | 2.4488e-01 | 365 | 1.1 | 205 | 18 | 1.5 | 411998 |
| 0223 | 65.9 | 7.5381e+00 | 1743 | 0.76 | 2.4837e-01 | 369 | 3.1 | 293 | 13 | 1.1 | 502661 |
| 0221 | 70.9 | 7.3936e+00 | 1687 | 1 | 2.5206e-01 | 373 | 1.1 | 249 | 22 | 1 | 475716 |

| $^{13}C(d,p)^{14}C^*$ 5th excited state Q-value 5.95, E = 10, Ex = 7.01 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E - dE | | | dE | | | Events | | | |
| run | deg | energy | channel | error | energy | channel | error | count | error | $\chi^2$/ndf | FC |
| 0200 | 25.9 | 8.3520e+00 | | | 2.2962e-01 | | | | | | 19786 |
| 0222 | 60.9 | 7.5684e+00 | 1717 | 0.74 | 2.4762e-01 | 365 | 1.1 | 164 | 14 | 1.5 | 411998 |
| 0223 | 65.9 | 7.4279e+00 | 1676 | 0.68 | 2.5117e-01 | 375 | 4.8 | 155 | 13 | 1.1 | 502661 |
| 0221 | 70.9 | 7.2843e+00 | 1647 | 0.98 | 2.5493e-01 | 373 | 1.1 | 161 | 14 | 1 | 475716 |

## 2 $^{13}C(d,d)^{13}C$

| $^{13}C(d,d)^{13}C, ^{12}C(d,d)^{12}C?, ^{16}O(d,d)^{16}O?$ Q-value 0.00, E = 10, Ex = 0.00 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E - dE | | | dE | | | Events | | | |
| run | deg | energy | channel | error | energy | channel | error | count | error | $\chi^2$/ndf | FC |
| 0200 | 25.9 | 9.3347e+00 | 2195 | 0.78 | 3.5859e-01 | 538 | 0.71 | 7263 | 208 | 1.7 | 19786 |
| 0222 | 60.9 | 8.1254e+00 | 1883 | 0.11 | 3.9658e-01 | 609 | 0.63 | 10367 | 109 | 2.6 | 411998 |
| 0223 | 65.9 | 7.9123e+00 | 1824 | 0.12 | 4.0421e-01 | 620 | 0.73 | 7831 | 89 | 1.5 | 502661 |
| 0221 | 70.9 | 7.6957e+00 | 1782 | 0.14 | 4.1230e-01 | 638 | 0.89 | 4717 | 69 | 1.4 | 475716 |

| $^{13}C(d,d)^{13}C^*$ 1st excited state Q-value 0.00, E = 10, Ex = 3.09 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E - dE | | | dE | | | Events | | | |
| run | deg | energy | channel | error | energy | channel | error | count | error | $\chi^2$/ndf | FC |
| 0200 | 25.9 | 6.1188e+00 | | | 4.8392e-01 | | | | | | 19786 |
| 0222 | 60.9 | 5.0712e+00 | 1168 | 0.73 | 5.4882e-01 | 864 | 6.2 | 185 | 14 | 1.3 | 411998 |
| 0223 | 65.9 | 4.8863e+00 | 1117 | 0.81 | 5.6212e-01 | 877 | 5.2 | 162 | 13 | 0.97 | 502661 |
| 0221 | 70.9 | 4.7035e+00 | 1081 | 0.95 | 5.7634e-01 | 904 | 5.6 | 156 | 14 | 1.1 | 475716 |

| $^{13}C(d,d)^{13}C^*$ 2nd excited state Q-value 0.00, E = 10, Ex = 3.68 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E - dE | | | dE | | | Events | | | |
| run | deg | energy | channel | error | energy | channel | error | count | error | $\chi^2$/ndf | FC |
| 0200 | 25.9 | 5.4789e+00 | 1265 | 2.2 | 5.2144e-01 | 823 | 1.3 | 2704 | 145 | 1.1 | 19786 |
| 0222 | 60.9 | 4.4631e+00 | 1023 | 0.39 | 5.9600e-01 | 918 | 113 | 913 | 33 | 0.79 | 411998 |
| 0223 | 65.9 | 4.2863e+00 | 975 | 0.31 | 6.1140e-01 | 968 | 2 | 1071 | 34 | 0.96 | 502661 |
| 0221 | 70.9 | 4.1073e+00 | 940 | 0.32 | 6.2790e-01 | 990 | 2.2 | 1000 | 32 | 1.1 | 475716 |

| $^{13}$C(d, d)$^{13}$C* 3rd excited state Q-value 0.00, E = 10, Ex = 3.85 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E - dE | | | dE | | | Events | | | |
| run | deg | energy | channel | error | energy | channel | error | count | error | $\chi^2$/ndf | FC |
| 0200 | 25.9 | 5.2921e+00 | | | 5.3361e-01 | | | | | | 19786 |
| 0222 | 60.9 | 4.2854e+00 | 982 | 0.57 | 6.1149e-01 | 967 | 29 | 451 | 24 | 0.79 | 411998 |
| 0223 | 65.9 | 4.1103e+00 | 933 | 0.49 | 6.2761e-01 | 1009 | 4.5 | 425 | 22 | 0.96 | 502661 |
| 0221 | 70.9 | 3.9330e+00 | 899 | 0.57 | 6.4490e-01 | 1031 | 4.2 | 372 | 21 | 1.1 | 475716 |

# 3 $^{13}$C(d, t)$^{12}$C

| $^{13}$C(d, t)$^{13}$C Q-value 1.31, E = 10, Ex = 0.00 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E - dE | | | dE | | | Events | | | |
| run | deg | energy | channel | error | energy | channel | error | count | error | $\chi^2$/ndf | FC |
| 0200 | 25.9 | 1.0312e+01 | | | 4.4939e-01 | | | | | | 19786 |
| 0222 | 60.9 | 8.7264e+00 | 2023 | 0.98 | 5.0520e-01 | 792 | 7.5 | 205 | 15 | 1.1 | 411998 |
| 0223 | 65.9 | 8.4505e+00 | 1944 | 0.66 | 5.1652e-01 | 806 | 3.8 | 313 | 18 | 1.1 | 502661 |
| 0221 | 70.9 | 8.1710e+00 | 1892 | 0.68 | 5.2856e-01 | 823 | 3.8 | 269 | 17 | 1.1 | 475716 |

| $^{13}$C(d, t)$^{13}$C* 1st excited state Q-value 1.31, E = 10, Ex = 4.44 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E - dE | | | dE | | | Events | | | |
| run | deg | energy | channel | error | energy | channel | error | count | error | $\chi^2$/ndf | FC |
| 0200 | 25.9 | 5.8805e+00 | | | 6.5668e-01 | | | | | | 19786 |
| 0222 | 60.9 | 4.5444e+00 | 1040 | 0.56 | 7.6887e-01 | 1222 | 4 | 428 | 22 | 1.1 | 411998 |
| 0223 | 65.9 | 4.3150e+00 | 976 | 0.51 | 7.9244e-01 | 1269 | 3.8 | 518 | 23 | 1 | 502661 |
| 0221 | 70.9 | 4.0837e+00 | 932 | 0.5 | 8.1783e-01 | 1307 | 3.3 | 471 | 22 | 1.6 | 475716 |

# 4 $^{13}C(d,\alpha)^{11}B$

| $^{13}C(d,\alpha)^{11}B$ Q-value 5.17, E = 10, Ex = 0.00 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E - dE | | | dE | | | Events | | | |
| run | deg | energy | channel | error | energy | channel | error | count | error | $\chi^2$/ndf | FC |
| 0200 | 25.9 | 1.1860e+01 | 2751 | 6.3 | 1.9163e+00 | 3257 | 163 | | | | 19786 |
| 0222 | 60.9 | 9.5921e+00 | 2182 | 1.2 | 2.1865e+00 | 3714 | 8.4 | | | | 411998 |
| 0223 | 65.9 | 9.1908e+00 | 2068 | 1.2 | 2.2429e+00 | 3811 | 5.9 | | | | 502661 |
| 0221 | 70.9 | 8.7817e+00 | 1988 | 1.6 | 2.3036e+00 | 3922 | 8.8 | | | | 475716 |

| $^{13}C(d,\alpha)^{11}B^*$ 1st excited state Q-value 5.17, E = 10, Ex = 2.12 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E - dE | | | dE | | | Events | | | |
| run | deg | energy | channel | error | energy | channel | error | count | error | $\chi^2$/ndf | FC |
| 0200 | 25.9 | 9.7862e+00 | 2270 | 42 | 2.1602e+00 | 3641 | 75 | | | | 19786 |
| 0222 | 60.9 | 7.5683e+00 | 1689 | 1.7 | 2.5054e+00 | 4280 | 19 | | | | 411998 |
| 0223 | 65.9 | 7.1735e+00 | 1577 | 1.8 | 2.5792e+00 | 4454 | 10 | | | | 502661 |
| 0221 | 70.9 | 6.7700e+00 | 1501 | 2.3 | 2.6592e+00 | 4575 | 12 | | | | 475716 |

| $^{13}C(d,\alpha)^{11}B^*$ 2nd excited state Q-value 5.17, E = 10, Ex = 4.44 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E - dE | | | dE | | | Events | | | |
| run | deg | energy | channel | error | energy | channel | error | count | error | $\chi^2$/ndf | FC |
| 0200 | 25.9 | 7.3572e+00 | 1506 | 23 | 2.5415e+00 | 4445 | 95 | | | | 19786 |
| 0222 | 60.9 | 5.1537e+00 | 1103 | 2.5 | 3.0371e+00 | 5404 | 16 | | | | 411998 |
| 0223 | 65.9 | 4.7499e+00 | 981 | 2.4 | 3.1487e+00 | 5497 | 14 | | | | 502661 |
| 0221 | 70.9 | 4.3327e+00 | 891 | 2.2 | 3.2726e+00 | 5696 | 16 | | | | 475716 |

| $^{13}C(d,\alpha)^{11}B^{*}$ 3rd excited state Q-value 5.17, E = 10, Ex = 5.02 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E - dE | | | dE | | | Events | | | |
| run | deg | energy | channel | error | energy | channel | error | count | error | $\chi^2$/ndf | FC |
| 0200 | 25.9 | 6.7326e+00 | 995 | 44 | 2.6669e+00 | 5532 | 31 | | | | 19786 |
| 0222 | 60.9 | 4.4925e+00 | 938 | 3.4 | 3.2241e+00 | 5404 | 16 | | | | 411998 |
| 0223 | 65.9 | 4.0797e+00 | 812 | 2.5 | 3.3524e+00 | 5901 | 24 | | | | 502661 |
| 0221 | 70.9 | 3.6503e+00 | 719 | 3.3 | 3.4966e+00 | 6158 | 17 | | | | 475716 |