

“type” integer field reflects the MC-true nature of the reconstructed candidate.

If “type” quantity is positive the candidate is signal, and the value of “type” shows how many ancestors the candidate has:

1 - it is primary

2- it is secondary (produced via decay of primary particle, or in inelastic process with primary particle)

3 - it is tertiary (produced via decay of secondary particle, or in inelastic process with secondary particle)

etc.

If “type” quantity is non-positive the candidate is background.

If in the ConverterOut task the SetIsWriteDetailedBG() was switched off then all background candidates will have type==0.

If in the ConverterOut task the SetIsWriteDetailedBG() was switched on then detailed nature of background candidate will be written as a negative number according to the following scheme:

$$-(1 \cdot d_1 + 10 \cdot d_2 + 100 \cdot d_3 + 10^3 \cdot m_{12} + 10^4 \cdot m_{23} + 10^5 \cdot m_{13})$$

where  $d_i$  is the status of i-th daughter and stands in i-th radix

$m_{ij}$  shows whether i-th and j-th daughter have the same mother

(For details see the table below)

$d_i$	Meaning
0	Daughter does not exist (only $d_3$ in two-body decay)
1	Reconstructed daughter's track is not matched to MC-particle
2	Daughter is matched to MC-particle, but is primary
3	Daughter is secondary, produced not via decay and from the mother particle with PDG code different from that of sought decay
4	Daughter is secondary, produced not via decay and from the mother particle with PDG equal to that of sought decay

5	Daughter is secondary, produced via decay and from the mother particle with PDG code different from that of sought decay
6	Daughter is secondary, produced via decay and from the mother particle with PDG equal to that of sought decay

$m_{ij}$	Meaning
0	At least one of the daughters does not have a mother (its d = 0, 1 or 2)
1	Daughters have the same mother
2	Daughters have different mothers

Examples:

type	Meaning
-22	2-body decay candidate is BG because both daughters are primary
-1055	2-body decay candidate is BG because daughters are produced from the decay of another mother particle species (e.g. we are searching lambda-baryon, and candidate is constructed from pions from K-short decay)
-1066	Impossible value because this would be a signal
-111666	Impossible value because this would be a signal