VI.D. INTEGRAL DATA FILE

When the data type is specified as "INTEGral quantities" (see card set 8 of the INPut file), two kinds of data files are needed. The first is an experimental *differential* data file, which is used only to generate the energy grid on which the integrals are to be calculated; the type of data and values of the cross sections in this file are ignored. The second kind of data file contains the experimental integral data and is designated as the "NTG" file.

In the NTG file, each type of integral data is specified by a unique five-character name, which is given in Columns 1 to 5 of the appropriate line. Names can be either uppercase or lowercase, and the ordering is arbitrary. Only those data types for which experimental measurements exist need to be specified; others can simply be omitted from this file.

Table VI D.1 shows the various types of integral data available in SAMMY. Note that underscore _ in a name denotes a blank space.

When the INPut and PARameter files specify more than one nuclide (isotope), SAMMY will calculate the integral quantities for each nuclide separately, ignoring the abundances specified in INPut and/or PARameter files. Integral data are assumed to be for a specific nuclide; *it is important to note that the ordering of the nuclides must be the same in the NTG file as in the PAR file.*

Correlations between experimental data are also given in the NTG file.

The name of the integral data file is given directly after the name of the differential data file, in the "interactive input to SAMMY." Details for the format of the NTG file are given in Table VI D.2.

Table VI D.1. Types of integral data

Name as used in NTG file	Description
THABS, THFIS, THCAP	Absorption, fission, or capture cross section, respectively, at thermal energy (E = 0.0253 eV)
MXABS, MXFIS, MXCAP	Maxwellian average absorption, fission, or capture cross section
WGABS, WGFIS, WGCAP	Westcott's *g* factor for absorption, fission, or capture cross section
RIABS, RIFIS, RICAP	Resonance integral for absorption, fission, or capture cross section
AVABS, AVFIS, AVCAP	Average integral for absorption, fission, or capture cross section
WATTS	Watt spectrum average
K1_ _ _	[v (MXFIS) - (MXABS)] 2 / $\sqrt{\pi}$
ALPHA	α = (RICAP) / (RIFIS)
NJALF	NJOY's α
NJETA	NJOY's η

Table VI D.2. Format of the NTG file

Line No.	Column	Variable Name	Meaning
1	1-70	TITLE	Title for the file; is printed in LPT file but never used
2	1-5	NUCLID	Nuclide number (default = 1); nuclides must be in the same order as in PAR file
3, 4, etc.	1- 5	WHAT	Type of integral data, from list in Table VI D.1
	11-20	DATA	Experimental value for this data type
	21-30	UNC	Experimental uncertainty for this data type
	31-40	CONST	For resonance integral data, CONST is the maximum energy for integrand, and CONST2 is the remainder to be added to the integrated value For average integral data, CONST is the lower limit on the integral and CONST2 the upper For K1, CONST is the value of v For Watt spectrum average, CONST = *a* and CONST2 = *b*
	41-50	CONST2	
5		(blank)	
6, etc.			Repeat lines 2 through 5 as many times as needed
7		(blank)	
8	1-5	WHAT	CORRElations follow
9	1-5	WHAT1	Type of integral data
	6-10	NUC1	Nuclide number
	11-15	WHAT2	Type of integral data
	16-20	NUC2	Nuclide number
	21-30	CORR	Correlation between data of type WHAT1 for nuclide number NUC1, and WHAT2 for Nuc2
10, 11, etc.			Repeat line 9 as many times as needed
12		(blank)	