APPENDIX

Contents of Chapter.

Table of Contents

APPENDIX I. The Pascal Headers

```
CONST
Maximum_Channels = 8192;
MaxNumPks = 50; { Maximum peaks in a FIT, or window}

TYPE
Spectrum_counts = ARRAY [1..Maximum_Channels] OF Real;
Experiment Header;
{ The following record, Expt_InfoRec, comprises the EXPERIMENT header. }

Expt_InfoRec = RECORD
LastSpect : Integer;
FirstSpec : Integer; { first Spectrum# }
Specimen_ID : String[50];;
MCA_Filename : String[25];;
Specimen_Comment_Field : Str255;
Was_PassWord : String[25];
RefFile: Boolean;
Analyst : String[50];
Detector : Detector_Rec;
Azimuth : real; { degrees }
Elevation : real; { degrees }
Detector_Area : real; { cm sq }
Detector_Thickness : real; { mm }
C_Thickness : real; { um }
Diamond : real; { spare }
Mylar : real; { um }
BN_Thickness : real; { um }
SiN_Thickness : real; { um }
Ice_Thickness : real; { um, as pure oxygen }
Au_Thickness : real; { um }
Al_Thickness : real; { um }
Be_Thickness : real; { um }
Si_Thickness : real; { um }
Moxtek : real; { um }
Paralene: real; { um }
WDS_Resolution: real; { eV }
dE : real;
Si_Resolution : real; { eV at Mn K alpha }
Energy_Intercept : real; { y intercept in eV }
```

```
Energy_Slope : real; { }
Number_of_Channels : integer;
kV : real;
Detector_Tilt : real; { Beta }
Quantum : real;
Spare2 : Boolean;
Spare3 : integer;
END;

Detector_Rec = RECORD
Spec : (EDS,WDS,EELS);
ID : integer;
END;

{The SPECTRUM header is made up by combining the following records.}

Specrtrum Header;

Element_InfoRec = RECORD
Atomic_number : Integer;
spare1 : real;
Weight_Fraction : real;
spare2 : real;
Valence : real;
END;

Plot_InfoRec = RECORD

Plot_Connected : Integer;
Plot_Symbol : Integer;
Spectrum_Color : RGBColor; {Red, Green, Blue }
END;

Acq_InfoRec = RECORD
Probed_Area : real;
X_Position : real; { um }
Y_Position : real; { um }
Spare1 : real;
FirstChannel : integer;
LastChannel : integer;
Begin_Faraday : real; { nA }
End_Faraday : real; { nA }
Begin_Time : Longint;
FirstValue : real;
EndValue : real;
spare2 : integer;
Real_Time : real; { The time on the wall }
Live_Time : real;
Slow_Channel_Counts : Longint; { Represents total out counts }
Medium_Channel_Counts : Longint; { If UTW. Approx. input counts below 1 keV }
Fast_Channel_Counts : Longint; { Represents total input counts above 1 keV }
RequestedLiveTime : LongInt;
ActualLiveTime : LongInt;
Acquiring : Boolean;
LLD : Integer; { Acquisition setup dialog box }
Offset : Integer; { Acquisition setup dialog box }
PulseProcessorType : Integer;
PulseProcessorSetting : Integer;
END;
```

Spectrum_InfoRec = RECORD

Spectrum_Type : String[4];
Spectrum_Comment_Field : Str255;
Spectrum_Number : Integer;
Spectrum_Class : String[25];
Theoretically_Generated : Boolean;
This_is_a_Standard : Boolean;
BkgSubtracted : Boolean;
Maximum_Counts : real;
Minimum_Counts : real;
X_Tilt : real; { degrees }
Y_Tilt : real; { degrees }
Take_Off_Angle : real; { degrees }
Spec_Detector_Distance : real; { mm }
Spare : real;
Specimen_Thickness : real; { cm }
Specimen_Density : real; { g/cm sq. }
Number_of_Elements : Integer;
Element_Info : array[1..15] of Element_InfoRec;
extra_space : array[1..157] of real;
WDS_in_eV : Boolean;
bool2 : Boolean;
Average_Z : real;
Spare1 : real;
Spare2 : Boolean;
Spare3 : Integer;
END;

Element_InfoRec = RECORD
Atomic_number : Integer;
Spare1 : Integer;
Weight_Fraction : real;
Spare2 : real;
Valence : real;
END;

{In the next two RECORD definitions, we combine the above records into the final Work_Spectrum RECORD. The "Results" spectrum, as well as the "scratch" spectra 1-8, are copies of the Work_Spectrum RECORD.}

Spectrum_Structure = RECORD

Spectrum_Info : Spectrum_InfoRec;
Acq_Info : Acq_InfoRec;
END;

Work_Spectrum = RECORD
Expt_Info : Expt_InfoRec;
Plot_Info : Plot_InfoRec;
SpectrumStuff : Spectrum_Structure;
S : Spectrum_counts; { ARRAY [1..Maximum_Channels] OF Real }
END;

A DTSA file of spectra will contain one Expt_InfoRec RECORD followed by as many Work_Spectrum RECORDs as there are "spectra".

Top

Table of Contents