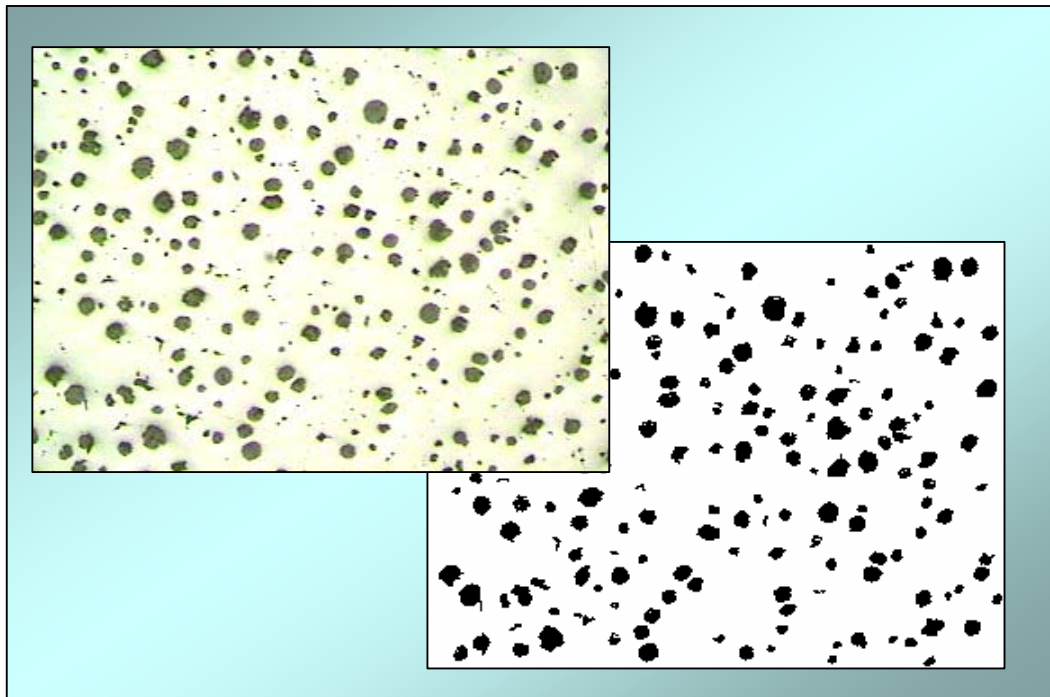# Spheroidal Graphite Image Analyzer Specifications on Program
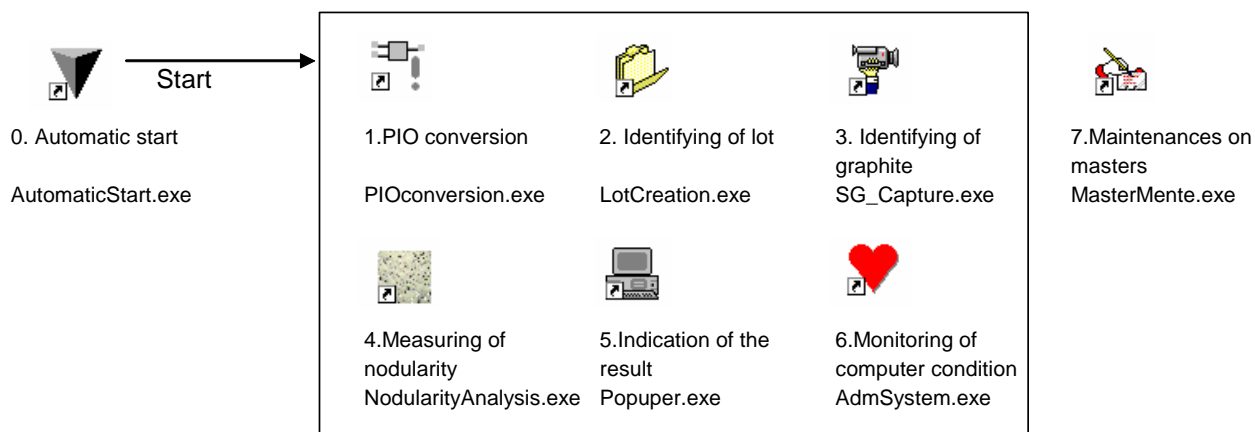
NAKAYAMA Corp.

Outline of apparatus

■Outline of software program;

This program software is prepared to do graphite nodularity analysis and works
in cooperation with the automatic polishing machine.
The flow of its work is as follows.

1. Preparation of the information on the lot.

2. Setting of specimen.

3. Operation of the automatic polishing machine.

4. Analysis on the nodularity of graphite.

5. Pass/fail decision and printing-out.

■Construction of software program;

The following program starts automatically as you boot the computer.

Start

0. Automatic start	1.PIO conversion	2. Identifying of lot	3. Identifying of graphite	7.Maintenances on masters
AutomaticStart.exe	PIOconversion.exe	LotCreation.exe	SG_Capture.exe	MasterMente.exe

4.Measuring of nodularity	5.Indication of the result	6.Monitoring of computer condition
NodularityAnalysis.exe	Popuper.exe	AdmSystem.exe

	ソフト名	機能
0. Automatic start	AutomaticStart.exe	Boot up the program on nodularity analysis.
1. PIO conversion	PIOconversion.exe	Communication with the polishing program.
2. Identifying of lot	LotCreation.exe	Preparation of the information on lot.
3. Identifying of graphite	SG_Capture.exe	Obtaining the data on graphite image in microscope.
4. Measuring of nodularity	NodularityAnlysis.exe	Measuring the nodularity.
5. Indication of the result	Popuper.exe	Indicate the nodularity and report errors if exist.
6. Checking of computer condition	AdmSystem.exe	Monitoring of computer condition such as battery or HD capacity.
7. Maintenances on masters	MasterMente.exe	Maintenances on masters

Identification of lot
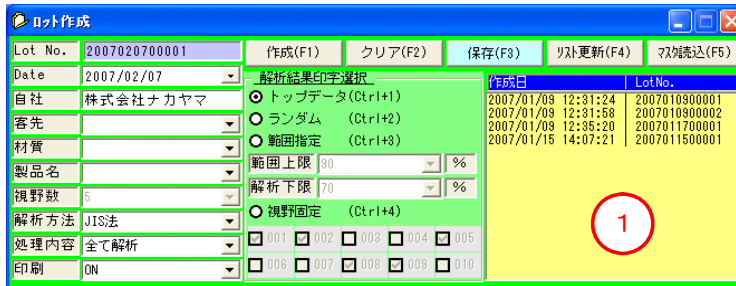
■Explanation of Program Software

LotCreation.exe

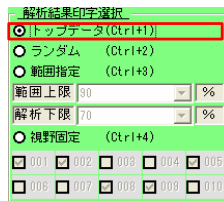Define the information on the specimen lot.
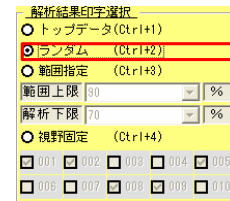
■Explanation of Window

Input items	Free input	——————	Own company
	List, free input	——————	Customer, Material, Product
	List input	——————	Date, Analysis method, Analysis content, Print-out

Selection of print-out results on analysis
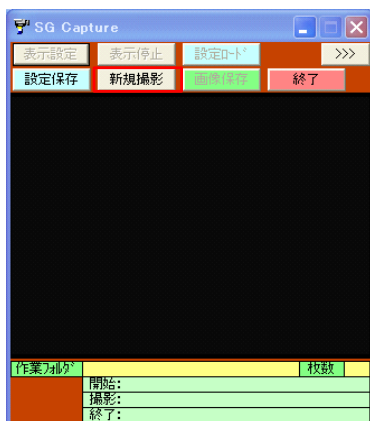

Specify upper and lower limit of range   Specify measuring field

Identify (F1)   ——————   Identify input information on the lot

Clear (F2)   ——————   Clear inputted information

Save (F3)   ——————   Update initial data on company, analyze method, analysis content and print-out

Update list (F4)   ——————   Update inputted information on the lot

Read master (F5)   ——————   Read master datum

■Explanation of Operating Method

◇Manual photograph

1. Execute [New photo]

2.In a case of take photo, execute [Save image],
In a case of ending, execute [Save photo].

◇Automatic photograph

1.Receive starting signal.

2. Photo is taken after one second of receiving the photo signal.

3. Photo is repeated, if the photo signal is received again.

4. Photo is closed, if the end signal is received.

Analysis of Nodularity

■Explanation of Program Software

NoduAnaly.exe

Nodularity analysis is done.

■Explanation of the window

It is indicated [Auto mode] & [Manu mode]

Measurement method

Result of measurement

F1 Analysis start ------ Manual analysis starts.
(It can not operate during [Auto mode])

F2 Clear ------ Indicated data are cleared.

F3 Set ------ Various setting is changed.

F4 Print ------ Printing is carried out.
(It can not operate during [Auto mode])

F5 Store ------ Data are stored.
(It can not operate during [Auto mode])

F7 Close ------ This system is closed.

■Explanation of Operating Method (Manual mode)
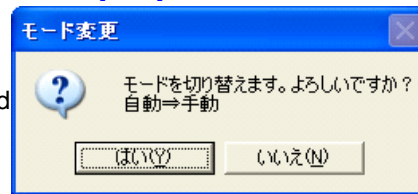
◇Change to the manual mode

1. Run [F1 Clear]

2. Run [F3Set].

3. It is indicated the window [Set change].

    Run [Mode convert].
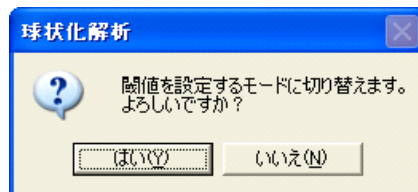
4.The Window as right side is indicated, then it selects [YES].

    Stated above, the mode conversion is closed

◇Setting threshold

1. Select [Threshold set] existed in the window [Set change].
   The following message is indicated, then select [YES].

2. Screen of the window is changed to that of red as shown
   the following. Then carry out [F1Analysis start].

■Explanation of Operating Method (Manual mode)

◇Setting threshold

3. Select an image of which you want to analyze.

4. Set a threshold and proceed with analysis.

5. The following message is indicated when it completes analysis.
   Confirm the result of analysis and if the threshold set is suitable, select [YES].

6. When setting is completed, color of the screen is back to the original of gray,
   and it is able to analyze with normal manual mode.
   If you want to cancel a set threshold, carry out again [Threshold set] on the screen [Set change].

■Explanation of Operating Method (Manual mode)

◇Nodularity analysis

1. Run [F1 Analysis start].

2. Select an image of which you want to analyze

3. Set a threshold and proceed with analysis

4. If you want analyze a next image, continue to analyze. (Max. 10 images)

◇Data storing

1. Run [F5 Store].
   [Datum store] window is shown.
   Select a subjected datum, and carry out [Store] or [Data-slip indicate].

If there is a slip, ○ will be fill out in the print column.

Information will be indicated.

Use in a case of searching lot.

■Explanation of Operating Method (Manual mode)

◇Printing

1. Make a data into indicated state with carrying out the data storing or treating.

2. Run [F4 Print].

It will be indicated [Lot information].

ロット情報	
日付	2007/02/13 11:56:21
ロットNo.	
測定方法	JIS法
会社名	株式会社ナカヤマ
客先名	
材質	
製品	
印刷方法	TOP 5
視野	視野 9 82.14% 視野 7 76.19% 視野 3 67.69% 視野 4 66.49% 視野 6 65.97%
球状化率	71.70%

印刷 ← Carry out printing.

閉じる

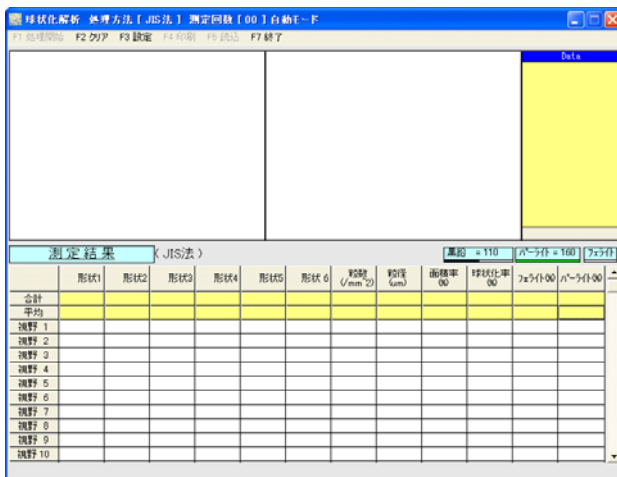It is possible to edit [____] areas in the window above.

Change please, as a need arises.
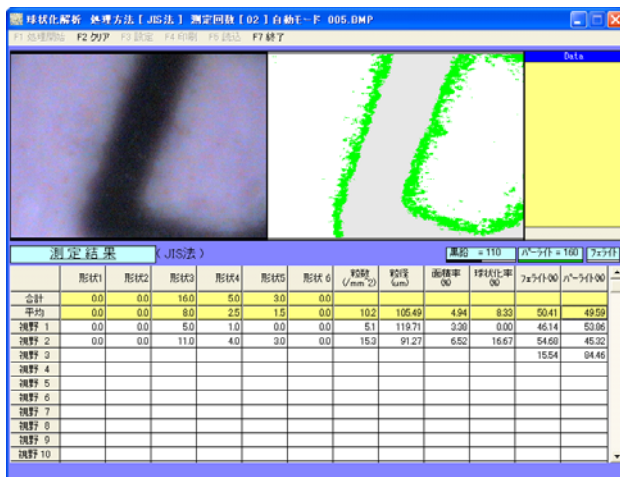
■Explanation of Operating Method (Automatic mode)

◇Automatic analysis

In the automatic mode, it cannot run but [F2 Clear], [F3 Set] and [F7 Close].
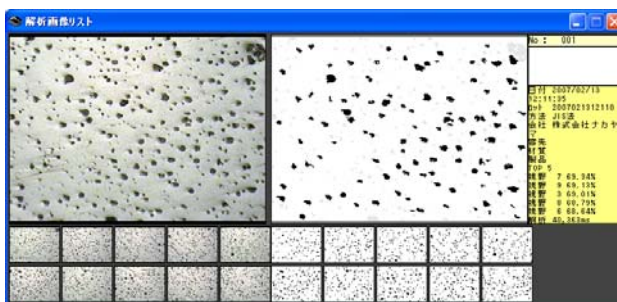During the automatic analysis, any manual operation is unable to run.

The window waiting for automatic analysis

The window during automatic analysis

The list during analysis

Indication of Judgment on Analyzed Result

■Explanation of Software Program

Popuper.exe

Indication of judgment on analyzed results and errors are shown.

■Explanation of window screen

The window on jedgment

OK Threshold for NG judge is set

Convert to the error indication

Close the window

```
鋳鉄黒鉛画像解析システム
2007/02/28 16:27:29 65 %  設定値更新  エラー表示   閉じる
          解析結果                判定
```

Nodularity is indicated

information of the lot is indicated

OK or NG is indicated

The window on error

```
鋳鉄黒鉛画像解析システム
2007/02/28 16:28:54 65 %  設定値更新  エラー表示   閉じる
設備エラー
          エラー履歴                閉じる
                                    エラー
                                    解除
```
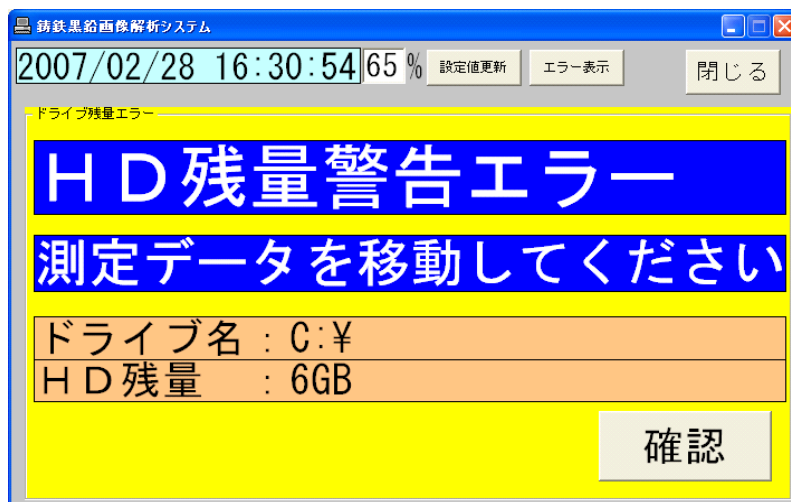
Back to the window on judgment
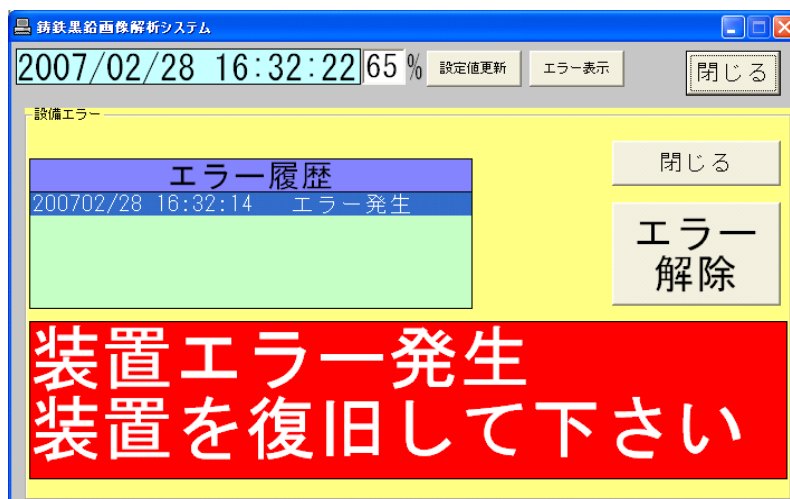
■Explanation of window screen

Error on the remains of drive

It is indicated when the remains of HD becomes small.
After increasening of the remains of HD through deleting of data, push [Confirm].

Error on the equipment

Error occures at the automatic polisher.
Please carry out restore work, following to the indication of wquipment.
After the restore work, push [Error corrects].

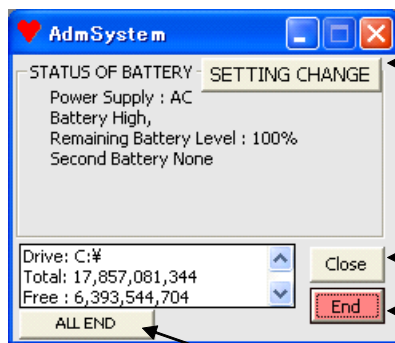# Monitoring of Computer Condition

■Explanation of software program

AdmSystem.exe

Monitoring of battery of computer and capacity of hard disk are carried out.

■Explanation of main window

Main window

STATUS OF BATTERY — SETTING CHANGE → Setting window is indicated

Close → Window is closed.

End → Soft program is finished.

ALL END → Computer is shutdown.

Explanation of setting window

Remaining battery level 50 % → Remains of battery at shutdown
Cutting time 60 sec → Duration between converted time to battery and shutdown

Watch drive C:¥ → Drive to be monitered

Remainder capacity 3 GB → Remains of warning HD

UPDATE → Update setting value

Master Maintenance

■Explanation of software program

MasterMente.exe

Editing of various master Is carried out.

■Explanation of window screen

It opens the master shown in left side

It closes the maintenance

It adds data
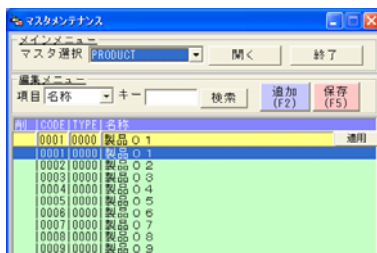
It updates the master

This is editing zone

Master on customers

It is indicated the information on master

◇Operating method

1. Specify a master to be edited.

2. Run [Open].

3. It edits data at the editing zone.
   If enter key is pushed within the editing zone, edited data are updated as same as pushing [apply].

4.If you want additional editing, run [Add (F2)].

5.When editing is finished, run [Save(F5)].

Master on products

Master on materials