Application Brief

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Introduction to the Spectrum Matching Function for Field X (SUS version)

1. Introduction

The SEA200 Field X is a powerful on-site analysis tool. This application brief introduces the Spectrum Matching function employed in the SEA200. This function is effective for rapid on-site discrimination of measurement samples.

2. Measurement Method

2-1 Instrument

SEA200 Field X mobile fluorescence X-ray element monitor

2-2 Sample

SUS

2-3 Measurement Conditions

Voltage	50 kV
Current	Auto-set
Collimator size	2 mm
Atmosphere	Air
Time	30 seconds

Using the SUS standard library provided by Hitachi High-Tech Science, we measured SUS standard samples employing the Spectrum Matching function.

2-4 Procedure

(1) Select *Qualitative Analysis* from the *Application* menu.

(2) Open the Spectrum window by selecting Spectrum Matching from the *Analysis* window or clicking on the icon shown here. 

(3) Select *Select Matching Library* from the *Analysis* menu or click on the icon shown here to open the matching library. 

(4) Measure the sample you want to discriminate.

(5) Click on “Execute Matching” in the Spectrum Matching window.

(6) Matches to the samples registered in the library are displayed.

3. Results

Shown on the next page is the result of a 30-second measurement of SUS321 as identified by Spectrum Matching. A window like that in Figure 1 displays values in order of their degree of difference. Furthermore, results such as those shown in figure 1 are possible even when measuring at different currents. Besides SUS321, the next page gives two examples of SUS measurements.

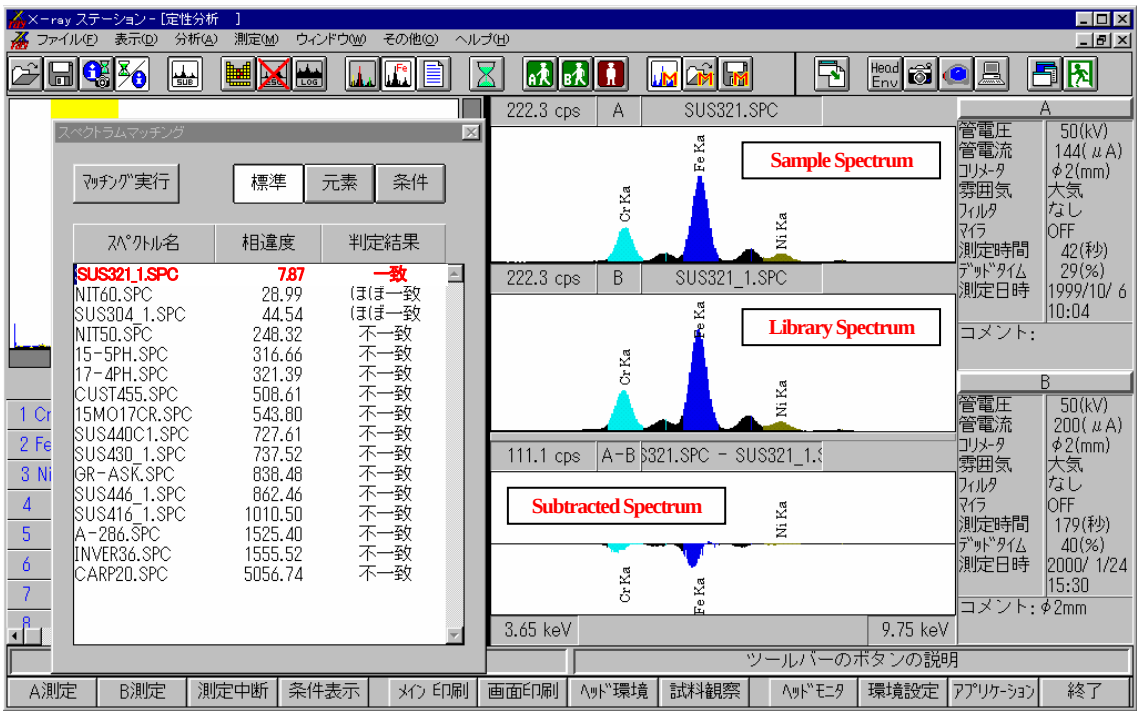

Figure 1 Example of Measurement Results

SUS321

Spectrum Name	Differ	Result
SUS321	7.87	Same
NIT60	28.99	Similar
SUS304	44.54	Similar
NIT50	248.32	Differ
15-5PH	316.66	Differ

SUS416

Spectrum Name	Differ	Result
SUS416	6.17	Same
GR-ASK	30.30	Similar
SUS430	87.07	Similar
SUS440C	132.08	Similar
17-4PH	213.86	Differ

SUS430

Spectrum Name	Differ	Result
SUS430	3.64	Same
SUS440C	47.54	Similar
SUS416	68.09	Similar
Gr-Ask	161.39	Similar
17-4PH	224.31	Differ

A value of 20 or less is classified as same, 200 or greater is classified as different, and those value in between are classified as similar.

4. Conclusion

From these results we were able to determine that different types of steel alloys can be roughly identified in 30 seconds time.