

Digital sample management and documentation of analytical methods $\langle \rangle \\ \langle \rangle$ Development of an Electronic Lab Notebook at the Helmholtz Institute Freiberg (HIF)

Theresa Schaller^{*1} // Thomas Gruber² // Leon Steinmeier¹ // Florian Rau¹

Introduction

At the Helmholtz Institute Freiberg (HIF), new technologies are being developed to improve sustainable circular economy. In this context various types of samples (e.g. rock samples, recycling material, etc.) play a central role. These samples go through various stages and laboratories, from preparation to storage. With a structured metadata management system all relevant information about the sample can be collected, stored and provided to others. To digitally record all work steps and the associated metadata an Electronic Laboratory Notebook (ELN) is currently being introduced at the HIF. The development of the ELN is based on the software Semantic MediaWiki[1].



manually.

Helmholtz-Zentrum Dresden-Rossendorf, ¹Helmholtz Institute Freiberg for Ressource Technology // ²Department of Information Services and Computing

System

Samples can be registered and a persistent identifier (PID) is automatically assigned within the system. Additional metadata (origin, sample name, registrator, etc.) is automatically included or can be entered

Each sample is registered in a SampleProject. This allows the user to group and sort his / her samples. In addition, all other functionality is anchored in the SampleProjects:

including the filing of preparation and analysis requests. The results of these analyses are linked back to the registered samples. At the end, all information contained in the system can be exported in various formats and used in other applications, publications, reports, etc.



Creating a SampleProject (Fig. 1)

- Mandatory field: Project name
- Automatically assigned / recorded: 3. Starting sample analysis / preparation • ID, creation date, creator requests

Registering a sample (Fig. 2)

- *Mandatory fields*:
 - Sample name
 - Sample type (e.g. rock sample, thin . Export the desired Information section,...) (e.g. for publication, report, etc.)
 - Physical location of the sample
 - Information on potential hazards
- Optional Fields (selection):
- Origin (Field, Preparation lab, ...)
- Rock type
- Mineral content
- Linked information

References

[1] https://www.semanticmediawiki.org/wiki/Semantic_MediaWiki [2] sample holder X-ray analytics. source: ©Frank Schinski [6] artworks by ©Silke Gerlich [3] Topas. source: ©Bernd Schröder

- Automatically assigned / recorded :
- (P)ID, registration date, registrator
- Preparation requests (Fig. 3)
- Analysis requests
- 4. Documentation



[4] Amethyst. source: ©Bernd Schröder [5] samples for x-ray analytics. source: ©Frank Schinski

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