

**Technical University of Košice  
Faculty of Metallurgy  
Center of Waste Processing**

# **LiteraData Manual**

*(Version 1)*

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**[www.censo.sk](http://www.censo.sk)**

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The Database LiteraDATA is focused on the searching and matching of published scientific information (articles, patents, reports, assessments, etc.) mostly in the area of the waste management as well as metallurgy.

All scientific information in the database is included in pdf format, and articles are available through the reference [fulltext](#).

The main purpose of the database is to gain fast access to relevant information.

## Launching the database

We launch the database by doubleclick on the file **LiteraData.mde**. After launching the database a searching form **F\_Search** is displayed (Fig.1). This form serves only for the searching, sorting and opening of the records (through a hypertext reference). For the inserting, editing and deleting of the records the **F\_Insert** form can be used.

| ID | Title   | Authors  | Source                          | Year | Keywords   | Type    | Language | Cited                    | Ref                      |
|----|---|--|---------------------------------|------|--|---------|----------|--------------------------|--------------------------|
| 1  | Hydrometallurgical process for recovery of metal values from spent nickel-metal hydride secondary | Pingwei Zhang, Toshiro Yokoyama, Osamu Itabashi, Yoshito Wakui, Toshishige M. Suzuki, Katsutoshi Inoue | Hydrometallurgy 50 (1998) 61-75 | 1998 | waste processing, hydrometallurgy, battery, Ni-MH, | article | english  | <input type="checkbox"/> | <a href="#">fulltext</a> |

*Fig. 1 The searching form F\_Search*

## Searching for the articles

Searching for the articles is possible through the searching form according to:

- Article's name
- Author's name
- Source
- Year
- Keywords
- Type ( article, report, law, patent,... )
- Language ( in which the article was written )

During searching we should follow several basic rules:

1. One text box can contain only one word or character string e.g. 'Hydrometallurgy' or 'hydromet' or 'waste processing'.
2. The database is not 'case sensitive' i.e. it does not matter if you type either small or capital letters.
3. In order to display articles which meet our parameters (Title, Author, Keywords, etc.) we need to enter the parameters into the searching form and press the **Search** button. If we want to erase the entered parameters we can use the **Clear** button, or we can do it manually.
4. If we do not enter any parameter into the searching form, the searching result will display all articles included in the database.
5. The searching for the articles works only in the **English language !!!!**

## Inserting a new article

For inserting a new article into the database we can use the form **F\_Insert** (Fig.2), which serves to the editing and deleting inserted records. The inserted data are saved automatically.

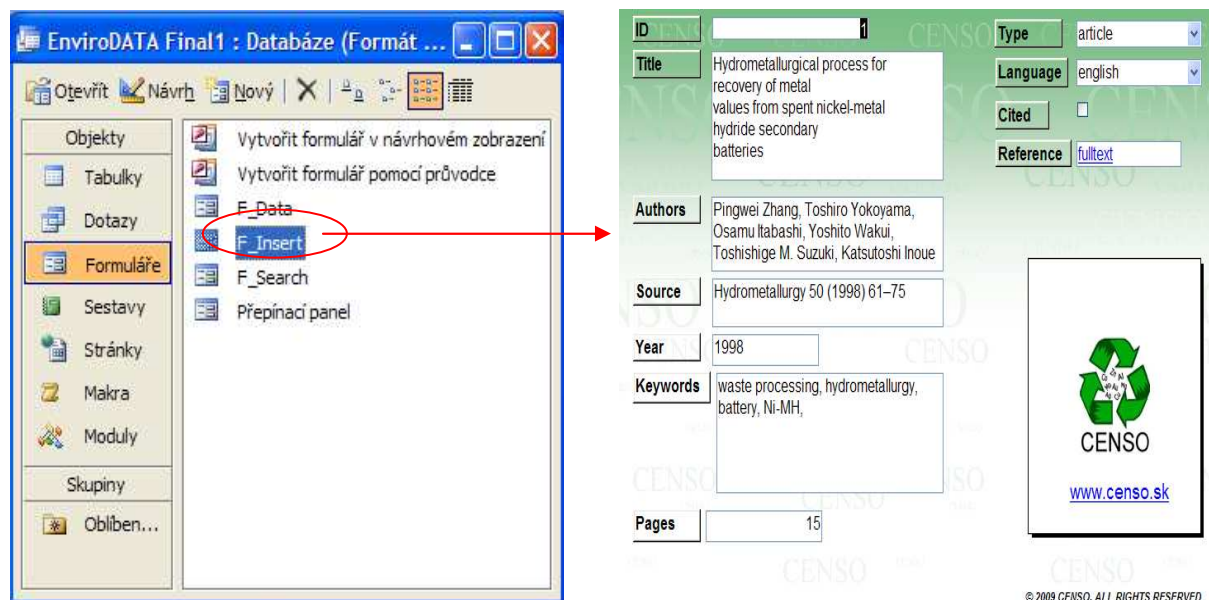
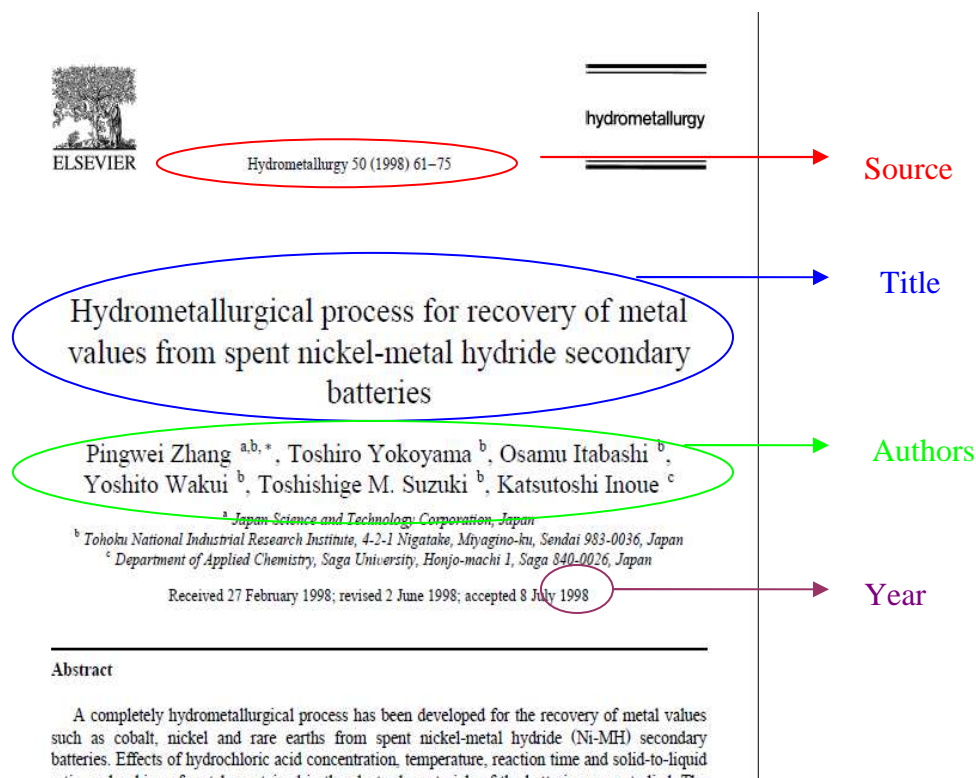


Fig.2 The form **F\_Insert** for inserting and editing

The form above contains following fields:

|                    |   |
|--------------------|---|
| <b>ID -</b>        | This field is filled automatically by the database itself.                    |
| <b>Title -</b>     | Article's name  |
| <b>Authors -</b>   | Author or authors of the article  |
| <b>Source -</b>    | Source of the article e.g. <i>Hydrometallurgy 50 (1998) 61-75</i>             |
| <b>Year -</b>      | Year of the issue   |
| <b>Keywords -</b>  | This field is filled according to the table below (tab.1).                    |
| <b>Pages -</b>     | Number of pages   |
| <b>Type -</b>      | Type of the article e.g. <i>article, patent, law,...</i>                      |
| <b>Language -</b>  | Language in which the article is written (slovak, czech, english, german,...) |
| <b>Cited -</b>     | If someone from our department is cited the actual article                    |
| <b>Reference -</b> | Hypertext reference to pdf. (fulltext)  |

On the following figure (Fig.3), an example of article is shown together with the graphical marking of data which are inserted into the database.



### The keywords allocation system

The system is based on sequential allocation of keywords to a certain article using the following method. Firstly, the keywords from the column marked **I** (Tab.1) are allocated. It means that if the article is related to the waste processing the words *waste processing* are allocated as the first keywords. If the article is related to a theoretical review or laws related to the waste management, the words *waste management* are allocated as the first keywords. Keywords *waste analyzing* are allocated in case, when the article is related to analytical methods used for waste analyzing. Analytical methods with their abbreviations are listed in tab.2 (analytical methods in the list are given only as abbreviations). Types of batteries as well as the way they are written as keywords are listed in tab.3.

In the second step keywords from column **II** are allocated. These keywords describe the article more precisely. Keywords from this column include mostly basic methods of the waste processing e.g. *hydrometallurgy*, *pyrometallurgy*, *mechanical treatment*, etc.

In the third step keywords from column **III** are allocated. These keywords include more specific methods of the waste processing, e.g. *leaching*, *electrowinning*, *pyrolysis*, etc. The fourth category of keywords marked as **IV** is focused on the type of waste the article is dealing with e.g. *battery*, *WEEE*, *municipal waste*, *EAF dust*, etc.

There can be more keywords describing the article. In the case when it is difficult to decide which of two keywords is more suitable to be used as a keyword WE ALLOCATE THEM BOTH ! After keywords listed in tab.1 are allocated, next keywords can be added.

The table below describes a system how the keywords are allocated to certain articles.

**Tab.1 Keywords allocated to the articles**

| I                | II  | III   | IV  |
|------------------|---|---|---|
| waste management | European directive                                    | č. (Pr. 2002/96/EC)   |   |
|                  | law   | International   | USA, UK, Czech, ...   |
|                  |   | Slovak  | č. PR.(223/2001)  |
|                  | recycling   | Battery, PCB, plastics,municipal waste,   | USA, UK, Czech, ...   |
|                  | collection, composition, production, characterization | Battery, PCB, plastics, municipal waste,  | USA, UK, Czech, ...   |
| waste processing | hydrometallurgy                                       | electrowinnig, disolution, leaching,  | WEEE, battery, PCB, municipal waste, industrial waste, slag, dust, mobile phones, flame retardants, car wrecks, catalysts, wastewater, EAF dust,zinc ferrite, waste oil |
|                  | pyrometallurgy, thermal processes                     | combustion, pyrolysis, vaporization,...   |   |
|                  | biometallurgy   | bioleaching, biosorption, ...   |   |
|                  | mechanical treatment,                                 | electrostatic separation, magnetic separation, eddy current separation, electrodynamic separation, adsorption, mechanical activation, |   |
|                  |   | grinding, screening, crushing, flotation,   |   |
|                  |   | recovery  |   |
| waste analyzing  | SEM, X-ray diffraction, EDXRF, AAS,                   | WEEE, battery, municipal waste, industrial waste  | copper, zinc, tin, gold,..  |

**Tab.2 The list of analytical methods abbreviation**

|   |
|---|
| <b>analyzing methods</b>                        |
| XFA - x-ray flourescence spectroscopy           |
| XRD - x-ray diffraction                         |
| TG - thermogravimetric analysis                 |
| SEM - scanning electron microscopy              |
| EDS - energy dispersive spectroscopy            |
| FTIR - Fournier transform infrared spectroscopy |

**Tab.3 Types of battery**

|                  |
|------------------|
| <b>batteries</b> |
| lithium          |
| Ni-MH            |
| Ni-Cd            |
| alkaline         |
| Zn-C             |
| Zn-Cl            |

## Examples of the keywords allocation system

In the following part three articles are shown as an example of the keywords allocation system.

1.



Hydrometallurgy 50 (1998) 61–75

hydrometallurgy

### Hydrometallurgical process for recovery of metal values from spent nickel-metal hydride secondary batteries

Pingwei Zhang <sup>a,b,\*</sup>, Toshiro Yokoyama <sup>b</sup>, Osamu Itabashi <sup>b</sup>, Yoshito Wakui <sup>b</sup>, Toshishige M. Suzuki <sup>b</sup>, Katsutoshi Inoue <sup>c</sup>

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Keywords allocated to the article: *waste processing, hydrometallurgy, battery, Ni-MH*

2.

L 37/24

EN

Official Journal of the European Union

13.2.2003

#### DIRECTIVE 2002/96/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on waste electrical and electronic equipment (WEEE)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 175(1) thereof,

Having regard to the proposal from the Commission <sup>(1)</sup>,

Having regard to the Opinion of the Economic and Social Committee <sup>(2)</sup>,


Having regard to the Opinion of the Committee of Regions <sup>(3)</sup>,

(4) The Council in its Resolution of 24 February 1997 on a Community strategy for waste management <sup>(4)</sup> insisted on the need for promoting waste recovery with a view to reducing the quantity of waste for disposal and saving natural resources, in particular by reuse, recycling, composting and recovering energy from waste and recognised that the choice of options in any particular case must have regard to environmental and economic effects but that until scientific and technological progress is made and life-cycle analyses are further developed, reuse and material recovery should be considered preferable where and in so far as they are the best environmental options. The Council also invited the Commission to develop, as soon as possible, an appropriate

Keywords allocated to the article: *waste management, European directive, 2002/96/EC*



3.

|  |  |   |
|--|--|---|
| <br>ELSEVIER  | Available online at <a href="http://www.sciencedirect.com">www.sciencedirect.com</a><br> ScienceDirect<br>Journal of Hazardous Materials 154 (2008) 417–425 | <hr/> <b>Journal of<br/>Hazardous<br/>Materials</b> <hr/><br><a href="http://www.elsevier.com/locate/jhazmat">www.elsevier.com/locate/jhazmat</a> |
| <p>Mineral phases of weathered and recent electric arc furnace dust</p> <p>Fernanda Machado Martins<sup>a</sup>, José Manoel dos Reis Neto<sup>b</sup>, Carlos Jorge da Cunha<sup>a,*</sup></p> <p><sup>a</sup> <i>Laboratório de Química Mineral Aplicada, Departamento de Química, Universidade Federal do Paraná (UFPR), CP 19081, CEP 81.530.000, Curitiba-PR, Brazil</i></p> <p><sup>b</sup> <i>Laboratório de Análise de Minerais e Rochas (LAMIR-UFPR), CEP 81.530.000, Curitiba-PR, Brazil</i></p> <p>Received 24 July 2007; received in revised form 11 October 2007; accepted 11 October 2007<br/>Available online 18 October 2007</p> |  |   |
| <hr/> <p><b>Abstract</b></p> <p>A weathered and a recent sample of electric arc furnace dust (EAFD), generated in a southern Brazilian steel industry, were characterized by</p>   |  |   |

Keywords allocated to the article: *waste analyzing, EAF dust, XFA, XRD, TG, SEM, EDS, FTIR*