BauDataWeb

The European Building and Construction Materials Database for the Semantic Web

http://semantic.eurobau.com/

A joint project by inndata Datentechnik GmbH and the E-Business & Web Science Research Group, Universität der Bundeswehr München
Purpose

• With this project, we expose a major dataset of the European building and construction materials market for the Semantic Web

• On the basis of the GoodRelations Web Vocabulary for E-Commerce

• This allows for the fine-grained search for products, suppliers, and warehouses for any building-related sourcing needs.
Why Bother?

- BauDataWeb is one of the largest and richest public datasets for a well-defined vertical sector that is available on the Semantic Web. It covers a major share of the European market.
- A business domain that suffers from what the Semantic Web promises to solve
BauDataWeb and Linked Open Data

• A very interesting aspect of this dataset is that it can be combined with other related datasets on the Web of Linked Data, e.g.
  – dbPedia information about population or transportation infrastructure,
  – governmental information, or
  – real estate offers.
Key Features

- Over 60 million triples of real business data with a high domain density
- Fully GoodRelations-compliant
- Fully W3C-compliant
- Geo data for warehouse locations
- FreeClassOWL product classes and properties for a majority of the products
Components

• **Dataset**
• **FreeClassOWL**
  – A GoodRelations-compliant ontology for describing construction and building materials and services
• **The Eurobau Utility Ontology**
  – Defines a few extensions to GoodRelations for the particular vertical domain
• **Demo application**
  – A demo application that demonstrates queries combining product features and warehouse distance
• **Public SPARQL endpoints** that host the data
FreeClassOWL

• A GoodRelations-compliant ontology for describing construction and building materials and services
  – **URI:** http://www.freeclass.eu/freeclass_v1
  – **HTML:** http://www.freeclass.eu/freeclass_v1.html
  – **OWL in RDF/XML:**
    http://www.freeclass.eu/freeclass_v1.owl
## BauDataWeb Dataset

- Brands / Companies
- Warehouse locations
- Product models & variants
- Availability
- Transportation / Delivery
- Geo position data

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**BauDataWeb**

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Eurobau Utility Ontology

• Defines a few extensions to GoodRelations for the particular vertical domain

• Example:
  http://semantic.eurobau.com/eurobau-utility.owl#DeliveryModeOwnFleetWithCrane

• OWL in RDF/XML:
  http://semantic.eurobau.com/eurobau-utility.owl
Demo Application

http://semantic.eurobau.com
http://www.ebusiness-unibw.org/tools/freeclass-search/
Statistics

- 81 Manufacturers / Brands
- 19 Reseller
- 183 Warehouse locations
- 56,360 Product Models (including variants)
- 1,783,798 Offerings
- 95% of the product models include rich FreeClassOWL descriptions
SPARQL Access

- You can load the data into any SPARQL endpoint of choice.
- For fetching the dataset, please use the semantic sitemap
  - [http://semantic.eurobau.com/sitemap.xml](http://semantic.eurobau.com/sitemap.xml)
- Currently, the data is available for SPARQL queries via the OpenLink Software Virtuoso repository at
  - [http://linkeddata.uriburner.com/sparql](http://linkeddata.uriburner.com/sparql)
SPARQL Query

Search for plan clay blocks (freeClass code 12201010) with a strength of 38 centimetres

```
PREFIX gr: <http://purl.org/goodrelations/v1#>
PREFIX fc: <http://www.freeclass.eu/freeclass_v1#>
PREFIX vcard: <http://www.w3.org/2006/vcard/ns#>
PREFIX foaf: <http://xmlns.com/foaf/0.1/>

WHERE {
  ?offer a gr:Offering .
  ?ph gr:hasMakeAndModel ?posm .
  ?offer gr:availableAtOrFrom ?lososp .
  ?posm a ?fc_gen .
  ?posm a gr:ProductOrServiceModel .
  FILTER(?ValueP_4=38) .
}
ORDER BY ?lososp ?posm_label
```
Testing SPARQL Query:

http://lod.openlinksw.com/sparql
http://linkeddata.uriburner.com/sparql  (2 endpoints)

Search for plan clay blocks (freeClass code 12201010) with a strength of 38 centimetres

<table>
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<th>Issuance</th>
<th>Issuance_label</th>
<th>Issuance_url</th>
<th>long</th>
<th>lat</th>
</tr>
</thead>
</table>
Live Application:  
http://semantic.eurobau.com

Find products, producers and/or resellers on

- type of product
- type of customer
- delivery method
- delivery mode
- target address
- from multiple servers
Live Application: http://semantic.eurobau.com

Find products, producers and/or resellers on

- type of product
- type of customer
- delivery method
- delivery mode
- target address
- from multiple servers
- Linked to resellers online-systems
Contact

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• The underlying relational database has been designed by Otto Handle and is being maintained and operated by inndata Datentechnik GmbH.

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References

• GoodRelations Vocabulary for E-Commerce
  – http://purl.org/goodrelations/