

mat 

a world of materials

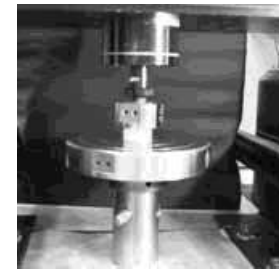
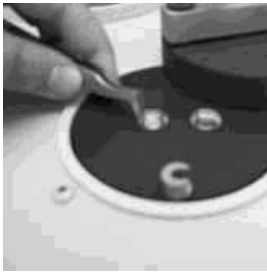
many products



reality

each with its own reality

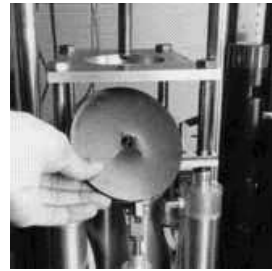
Material data



compressive

stress relaxation

tensile



viscosity

fatigue

conductivity

expansion

of a more useful kind!

web services for material data



Matereality for Infinite Diversity

Matereality Serves Material Data with MATML Connectivity

Hubert Lobo



Outline

- Needs analysis
- Solution features
- Conclusions

Materials users' requirements

- Extensible data diversity for now, and the future
- Extensible materials diversity from metals to fabric
- Smart data search ability
- Visualization tools to understand behavior trends
- Data traceability
- Selective global access/controls
- Security
- Easy export, seamless connectivity

Materials Properties used differ

- Properties depend on application
 - What stage of product life cycle
 - What kind of material
 - Computer aided tools being used
 - Processing conditions

Data is application-specific

Diversity

If melt flow index is all you use....

- The correct material property for a particular use may not be the right one for another application
 - Is your database smart enough to guide you to the right properties you need?
 - Is it simply a large repository of numerical data on many outdated materials?
 - Does your database architecture understand and display behavior of modern materials?

why pay for it when it is free?

Material data of a more useful kind?

- Data is useless outside the context for which it was generated
- Vast repositories of single point data have existed for decades and have been free
- Digitization of such repositories brings limited additional beyond an Excel spread sheet downloaded for free
- Would you trust a numerical value for material data without its traceability?

Example

Specificity of material data

Part designer's matereality

- Stress-strain data
- Impact data
- Refractive index

Moldflow analyst's matereality

- Viscosity
- Thermal conductivity
- Melt density
- Specific heat
- No-flow temperature

Molder's matereality

- Melt flow rate
- Izod strength

Product: safety glasses



Material: polycarbonate

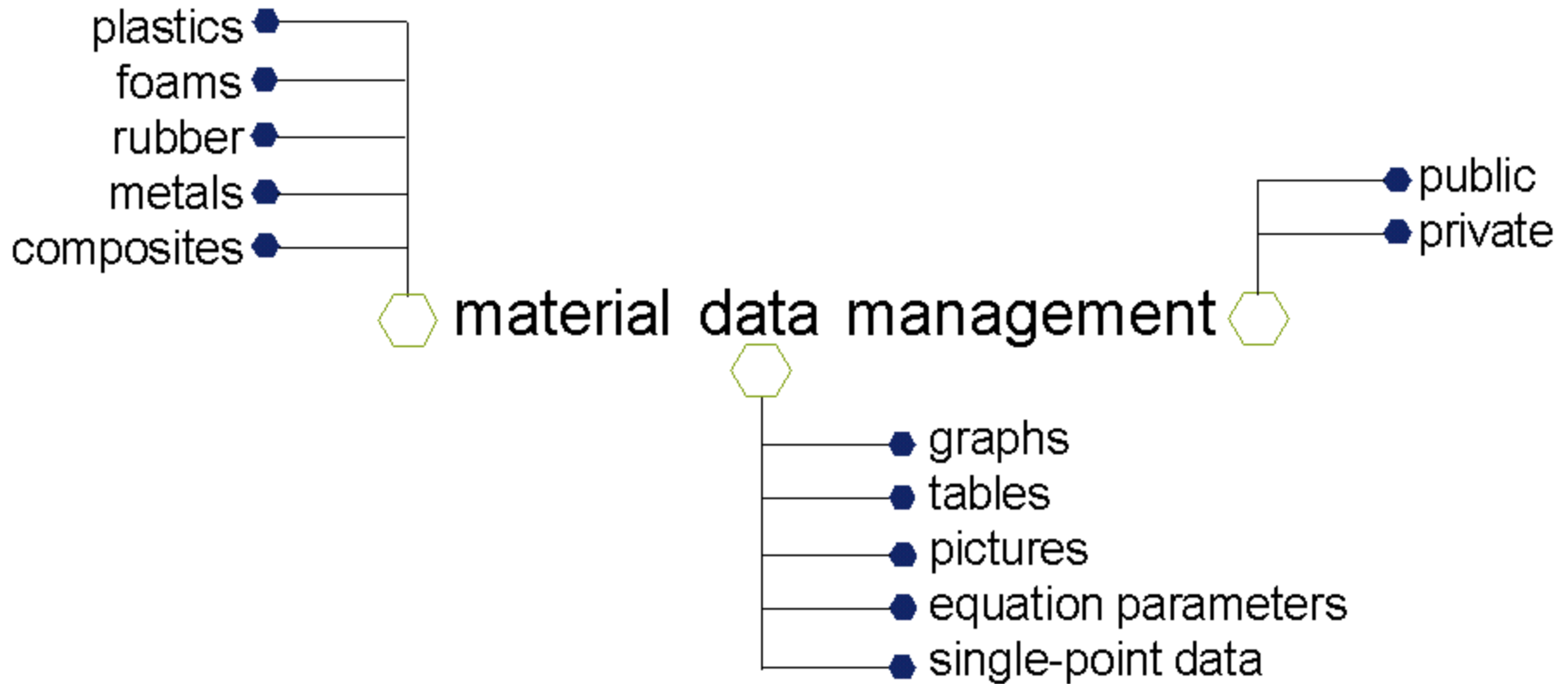
The case in singular

- I need my part designer to have access to stress strain data on the materials that I use the most
- My Moldflow analysts (sub-contractors) will need no flow temperature for the same material that has been subjected to the same conditions
- The molders will need MFI for the above
- The manufacturer in Asia will need the same

For today's global spread PLM

Solution

Matereality cross-section



Search

Many “mater realities”

Class	Sub Class	Supplier
Any <input type="button" value="v"/>	Any <input type="button" value="v"/>	Any <input type="button" value="v"/>



Property Search
Search for properties

Go



CAE Wizard
Search for material
model parameters

Go



Datasheets
Display datasheets

Go

Guided by a savvy wizard

Ensuring trust

- How do we know how good it is?
 - Data source
 - Variability
 - Pertinence to my application
 - Certification
 - all data is not created equal
 - conversely, some data cannot be used without certification

Can you risk bad data inputs?

Data access and security

- Highly collaborative
- Many stakeholders
 - Material suppliers
 - Part suppliers
 - Consultants
 - CAE vendors
- Selective sharing is essential

Logs: who used what, when

Connectivity is meaningful

- Seamless connectivity is significant only if
 - Data used are beyond simple, single point text!
 - Database is diverse and extensible to adapt with future developments
 - Data quality assurance is available
- Bad data + good connectivity is just a technological gimmick!

Value-add vs just tech gimmick!

Exports for end application

- Designer's use
- Analyst's use
- Moldmaker's use
- Selective sharing across platforms is essential via a standard format: MATML

Export as MATML, Excel, custom models, formats and fits

Connectivity

Export Dataset as MatML

Export currently permits creation of files which are readable in a variety of applications including Excel. Depending on your browser settings, the file will either download directly or open automatically in the browser. In the direct download mode, the browser will ask you to save the file before you can use it.

In rare cases, you may experience unpredictable results because of the settings peculiar to your browser. For example, the data does not get assigned, one to a cell. In this case, uncheck the Use My Default Browser box below and try again. Now, the data will be saved for direct download

Use my default browser

Property	Result	
Specific Heat	Transition Onset	Export
Specific Heat	Glass Transition Temperature	Export
Specific Heat	Transition End	Export
Specific Heat	Transition Temperature	Export
Specific Heat	Specific Heat v. Temperature Curve	Export
Specific Heat	Specific Heat v. Temperature Data	Export

Export All

Done

Today's standards and future materials needs

Summary

- Collapse limited databases that cause increased risks and costs
- Make data available 24/7, no retests, no data loss
- Achieve easy accessibility
- Achieve infinite diversity, extensible for future
- Achieve optimized connectivity, remove data flow hurdles

Matereality, the complete materials solution!



Questions?

www.matereality.com

