

EC Materials and Manufacturing Ontology workshop 6th June

- Dow's ongoing work on ontology for plastic films

- Your name and name of your taxonomy and/or ontology
 - ***Hein Koelman – Dow Benelux***
 - ***Plastic films ontology***
- What is the application domain of your taxonomy and/or ontology?
 - ***Within Polymers: plastic films for packaging applications***
- What is the intended purpose of the taxonomy and/or ontology?
(Taxonomies are used for data documentation, while ontologies add the possibility of extended reasoning)
 - ***Used to search/find data, to link data across the domain, to get recommendations on films, resins etc, to link models and modelling workflows across the domain***

- How do you represent the world:
 - **as a continuum**
 - ~~as discrete particles?~~
 - ~~with quantum mechanics?~~
- What are the concepts, with definitions, in the upper level of your taxonomy and/or ontology?
 - ***Upper level entities that represent the source materials (polymer, resin, additives), fabrication conditions, output product (film) and performance characteristics.***
- What are the industrial use cases (e.g. in ontology-driven tools) demonstrating the value of the taxonomy and/or ontology?
 - ***Search semantics and recommender engines***
 - ***Mapping/linking data used for modelling***
- What overlaps do you see with other taxonomy and/or ontologies?
 - ***We are trying to find ontologies which we can use complementary to what we are building for specific domains.***

Ontologies

- What are the (main) relations in your ontology?
 - *Is_a, has_part, has_characteristic*
- What is the knowledge your specific ontology represents?
 - *Knowledge necessary for a pragmatic description of current practices. We try to keep it as simple and small as possible. Only entities added where needed (Bottom-Up approach)*
- How does your ontology represent the relations between different granularity views on the same object?
- How does your ontology represent materials?
 - *Limited to plastic films and its ingredients, so also polymer (resins)*
- What type of processes do you address? How does your ontology represent these processes?
 - *Manufacturing process of making film, different film process types (Blown film, cast film,..), different locations, equipment settings which will impact film performance*
- How does your ontology represent manufacturing?
 - *As above Manufacturing process of making film*
- How does your ontology address the circular connection between physical properties, materials models (see definition in RoMM [Review of Materials Modelling VI](#)) and measurement?
 - *The ontology connect the physical world of films and polymers, the film process and all of the characterizations(measurements). Not yet the material models*
- What is the representation language and implementation (logics)?
 - *Owl representation*

Physical world

