

Classes

Communication

Cooling_Of_Lead

Cooling_Of_Lead \sqsubseteq Pouring_Process

Drip_Ladle

Drip_Ladle \sqsubseteq Ladle

Emptying_Ladle

Emptying_Ladle \sqsubseteq Tasks

Emptying_of_Drip_Ladle

Emptying_of_Drip_Ladle \sqsubseteq Emptying_Ladle

Emptying_of_Lead_Ladle

Emptying_of_Lead_Ladle \sqsubseteq Emptying_Ladle

Emptying_of_Slag_Ladle

Emptying_of_Slag_Ladle \sqsubseteq Emptying_Ladle

Explosion

Explosion \sqsubseteq Risks

Fire_Hazard

Fire_Hazard \sqsubseteq Risks

Gas_Duct

Gas_Duct \sqsubseteq Pouring_Process

Ladle

Ladle \sqsubseteq Tools

Lead_Ladle

Lead_Ladle \sqsubseteq Ladle

Lead_Refinery

Lead_Refinery \sqsubseteq Emptying_of_Lead_Ladle

Leave_Slag_Ladle

Leave_Slag_Ladle \sqsubseteq Solidification_Site

Maintenance

Northern_Train

Northern_Train \sqsubseteq Train

O1

O1 \sqsubseteq Operator_(O)

O2

O2 \sqsubseteq Operator_(O)

Operator_(O)

Operator_(O) \sqsubseteq Roles

Pickup_Slag_Ladle

Pickup_Slag_Ladle \sqsubseteq Solidification_Site

Pouring_Of_Lead

Pouring_Of_Lead \sqsubseteq Pouring_Process

Pouring_Process

Pouring_Process \sqsubseteq Tasks

Risks

Roles

Slag_Ladle

Slag_Ladle \sqsubseteq Ladle

Slag_Pouring

Slag_Pouring \sqsubseteq Pouring_Process

Slag_Solidification

Slag_Solidification \sqsubseteq Solidification_Site

Slag_Truck_Driver_(S)

Slag_Truck_Driver_(S) \sqsubseteq Roles

Smoke_Emission

Smoke_Emission \sqsubseteq Risks

Solidification_Site

Solidification_Site \sqsubseteq Tasks

Southern_Train

Southern_Train \sqsubseteq Train

Tasks

Tools

Train

Train \sqsubseteq Tools

Whiteboard

Object properties

Area

\sqsubseteq Solidification_Site
 \exists Area Thing \sqsubseteq Pickup_Slag_Ladle
 \exists Area Thing \sqsubseteq Leave_Slag_Ladle

Clear_Gas_Duct

\sqsubseteq Pouring_Process
 \exists Clear_Gas_Duct Thing \sqsubseteq O2
 $\top \sqsubseteq \forall$ Clear_Gas_Duct Gas_Duct

Communication

Cooling_Ok

\sqsubseteq Tasks
 \exists Cooling_Ok Thing \sqsubseteq Pouring_Of_Lead

Emptying_Furnace

\sqsubseteq Pouring_Process
 \exists Emptying_Furnace Thing \sqsubseteq O1
 $\top \sqsubseteq \forall$ Emptying_Furnace Lead_Ladle

Fleetskill_Order_Maintenance

\sqsubseteq Communication
 \exists Fleetskill_Order_Maintenance Thing \sqsubseteq Operator_(O)
 $\top \sqsubseteq \forall$ Fleetskill_Order_Maintenance Slag_Truck_Driver_(S)

Fleetskill_Order_Pouring

\sqsubseteq Communication
 \exists Fleetskill_Order_Pouring Thing \sqsubseteq Operator_(O)
 $\top \sqsubseteq \forall$ Fleetskill_Order_Pouring Slag_Truck_Driver_(S)

Get_On_Area

\sqsubseteq Solidification_Site
 \exists Get_On_Area Thing $\sqsubseteq \exists$ LadleNr Datatype<http://www.w3.org/2001/XMLSchemaanyURI>
 $\top \sqsubseteq \forall$ Get_On_Area (\exists Area Datatype<http://www.w3.org/2001/XMLSchemaanyURI>)

Hole_In_Ladle

\sqsubseteq Risks
 \exists Hole_In_Ladle Thing \sqsubseteq Fire_Hazard
 $\top \sqsubseteq \forall$ Hole_In_Ladle Slag_Truck_Driver_(S)
 $\top \sqsubseteq \forall$ Hole_In_Ladle Operator_(O)

LadleNr

\sqsubseteq Tools
 \exists LadleNr Thing \sqsubseteq Ladle

Ladle_Not_Ok_To_Lift

\sqsubseteq Risks
 \exists Ladle_Not_Ok_To_Lift Thing \sqsubseteq Fire_Hazard
 $\top \sqsubseteq \forall$ Ladle_Not_Ok_To_Lift Slag_Truck_Driver_(S)

Ladle_Temperature

\sqsubseteq Tools
 \exists Ladle_Temperature Thing \sqsubseteq Ladle

Lead_Pouring

\sqsubseteq Pouring_Process
 \exists Lead_Pouring Thing \sqsubseteq Lead_Refinery
 $\top \sqsubseteq \forall$ Lead_Pouring Slag_Truck_Driver_(S)

Lead_Temperature

\sqsubseteq Tasks
 \exists Lead_Temperature Thing \sqsubseteq Pouring_Of_Lead

Lead_To_Refinery

\sqsubseteq Tasks
 \exists Lead_To_Refinery Thing $\sqsubseteq \exists$ Ladle_Temperature Datatypehttp://www.w3.org/2001/XMLSchemaanyURI

Leave_On_Area

\sqsubseteq Solidification_Site
 \exists Leave_On_Area Thing $\sqsubseteq \exists$ LadleNr Datatypehttp://www.w3.org/2001/XMLSchemaanyURI
 $\top \sqsubseteq \forall$ Leave_On_Area (\exists Area Datatypehttp://www.w3.org/2001/XMLSchemaanyURI)

Level_of_Metal_in_Ladle

\sqsubseteq Risks
 \exists Level_of_Metal_in_Ladle Thing \sqsubseteq Fire_Hazard
 \exists Level_of_Metal_in_Ladle Thing \sqsubseteq Smoke_Emission

Lift_Down_Ladle

\sqsubseteq Pouring_Process
 \exists Lift_Down_Ladle Thing $\sqsubseteq \exists$ LadleNr Datatypehttp://www.w3.org/2001/XMLSchemaanyURI
 $\top \sqsubseteq \forall$ Lift_Down_Ladle Train

Lift_Up_Ladle

\sqsubseteq Pouring_Process
 \exists Lift_Up_Ladle Thing $\sqsubseteq \exists$ LadleNr Datatypehttp://www.w3.org/2001/XMLSchemaanyURI
 $\top \sqsubseteq \forall$ Lift_Up_Ladle Train

Liquid_In_Slag_Ladle

\sqsubseteq Risks
 \exists Liquid_In_Slag_Ladle Thing \sqsubseteq Smoke_Emission
 \exists Liquid_In_Slag_Ladle Thing \sqsubseteq Explosion
 \exists Liquid_In_Slag_Ladle Thing \sqsubseteq Fire_Hazard
 $\top \sqsubseteq \forall$ Liquid_In_Slag_Ladle Operator_(O)
 $\top \sqsubseteq \forall$ Liquid_In_Slag_Ladle Slag_Truck_Driver_(S)

Loss_Of_Production_Time

\sqsubseteq Risks

Lubrication

\sqsubseteq Tools

\exists Lubrication Thing $\sqsubseteq \exists$ LadleNr Datatypehttp://www.w3.org/2001/XMLSchemaanyURI

$\top \sqsubseteq \forall$ Lubrication Slag_Truck_Driver_(S)

Pouring_Process

\sqsubseteq Tasks

Recomended_Ladle_Temp

\sqsubseteq Risks

\exists Recomend_Ladle_Temp Thing \sqsubseteq Lead_Ladle

\exists Recomend_Ladle_Temp Thing \sqsubseteq Slag_Ladle

Risks

Roll_In_Norhtern_Train

\sqsubseteq Pouring_Process

\exists Roll_In_Norhtern_Train Thing \sqsubseteq O1

$\top \sqsubseteq \forall$ Roll_In_Norhtern_Train Lead_Ladle

$\top \sqsubseteq \forall$ Roll_In_Norhtern_Train Drip_Ladle

Roll_In_Southern_Train

\sqsubseteq Pouring_Process

\exists Roll_In_Southern_Train Thing \sqsubseteq O1

$\top \sqsubseteq \forall$ Roll_In_Southern_Train Slag_Ladle

Roll_Out_Northern_Train

\sqsubseteq Pouring_Process

\exists Roll_Out_Northern_Train Thing \sqsubseteq O1

$\top \sqsubseteq \forall$ Roll_Out_Northern_Train Drip_Ladle

$\top \sqsubseteq \forall$ Roll_Out_Northern_Train Lead_Ladle

Roll_Out_Southern_Train

\sqsubseteq Pouring_Process

\exists Roll_Out_Southern_Train Thing \sqsubseteq O1

$\top \sqsubseteq \forall$ Roll_Out_Southern_Train Slag_Ladle

Slag_Ladle_Not_Empty

- ⊆ Risks
- ∃ Slag_Ladle_Not_Empty Thing ⊆ Smoke_Emission
- ∃ Slag_Ladle_Not_Empty Thing ⊆ Explosion
- ∃ Slag_Ladle_Not_Empty Thing ⊆ Fire_Hazard
- ⊆ ∃ Slag_Ladle_Not_Empty Operator_(O)
- ⊆ ∃ Slag_Ladle_Not_Empty Slag_Truck_Driver_(S)

Slag_Ladle_Not_To_Be_Emptied

- ⊆ Solidification_Site
- ∃ Slag_Ladle_Not_To_Be_Emptied Thing ⊆ Slag_Ladle

Slag_Ladle_Not_Warm

- ⊆ Risks
- ∃ Slag_Ladle_Not_Warm Thing ⊆ Explosion
- ∃ Slag_Ladle_Not_Warm Thing ⊆ Fire_Hazard
- ⊆ ∃ Slag_Ladle_Not_Warm Operator_(O)
- ⊆ ∃ Slag_Ladle_Not_Warm Slag_Truck_Driver_(S)

Slag_Temperature

- ⊆ Tasks
- ∃ Slag_Temperature Thing ⊆ Slag_Ladle

Solidification_Site

- ⊆ Tasks

Tasks

Telephone_Communication

- ⊆ Communication
- ∃ Telephone_Communication Thing ⊆ Operator_(O)
- ⊆ ∃ Telephone_Communication Slag_Truck_Driver_(S)

Time_For_Solidification

- ⊆ Solidification_Site
- ∃ Time_For_Solidification Thing ⊆ Slag_Ladle

Time_To_Wait_If_Ladle_Full

- ⊆ Level_of_Metal_in_Ladle
- ∃ Time_To_Wait_If_Ladle_Full Thing ⊆ Lead_Ladle
- ∃ Time_To_Wait_If_Ladle_Full Thing ⊆ Slag_Ladle

Tools

Visual_Inspection

\sqsubseteq Tools
 \exists Visual_Inspection Thing $\sqsubseteq \exists$ LadleNr Datatype $\text{http://www.w3.org/2001/XMLSchemaanyURI}$
 $\top \sqsubseteq \forall$ Visual_Inspection Roles

Data properties

Area

$\text{Area} \not\equiv \text{Noted_Area}$
 $\top \sqsubseteq \forall$ Area DatatypeRestrictionDatatype $\text{http://www.w3.org/2001/XMLSchemainteger FacetmaxInclusive"32"^^http://www.w3.org/2001/XMLSchemainteger Inclusive"12"^^http://www.w3.org/2001/XMLSchemainteger}$

Cooling_Ok

$\top \sqsubseteq \forall$ Cooling_Ok DatatypeRestrictionDatatype $\text{http://www.w3.org/2001/XMLSchemainteger FacetminInclusive"0.2"^^http://www.w3.org/2001/XMLSchemafloat Inclusive"1"^^http://www.w3.org/2001/XMLSchemafloat}$

Date

\sqsubseteq WhiteBoard

Furberg_Garage

\sqsubseteq Maintenance
 \exists Furberg_Garage Datatype $\text{http://www.w3.org/2000/01/rdf-schemaLiteral} \sqsubseteq \exists$ LadleNr Datatype $\text{http://www.w3.org/2001/XMLSchemainteger}$
 $\top \sqsubseteq \forall$ Furberg_Garage DatatypeRestrictionDatatype $\text{http://www.w3.org/2001/XMLSchemainteger FacetminInclusive"1"^^http://www.w3.org/2001/XMLSchemainteger Inclusive"32"^^http://www.w3.org/2001/XMLSchemainteger}$

Inspection

\sqsubseteq Maintenance
 \exists Inspection Datatype $\text{http://www.w3.org/2000/01/rdf-schemaLiteral} \sqsubseteq \exists$ LadleNr Datatype $\text{http://www.w3.org/2001/XMLSchemainteger}$
 $\top \sqsubseteq \forall$ Inspection DatatypeRestrictionDatatype $\text{http://www.w3.org/2001/XMLSchemainteger FacetminInclusive"1"^^http://www.w3.org/2001/XMLSchemainteger Inclusive"32"^^http://www.w3.org/2001/XMLSchemainteger}$

LadleNr

$\text{LadleNr} \not\equiv \text{Noted_LadleNr}$
 $\top \sqsubseteq \forall$ LadleNr DatatypeRestrictionDatatype $\text{http://www.w3.org/2001/XMLSchemainteger FacetminInclusive"1"^^http://www.w3.org/2001/XMLSchemainteger Inclusive"32"^^http://www.w3.org/2001/XMLSchemainteger}$

Ladle_Temperature

$\top \sqsubseteq \forall$ Ladle_Temperature DatatypeRestrictionDatatype $\text{http://www.w3.org/2001/XMLSchemainteger FacetmaxInclusive"0"^^http://www.w3.org/2001/XMLSchemainteger}$

Lead_Temperature

$\top \sqsubseteq \forall \text{Lead_Temperature} \text{DatatypeRestrictionDatatype} \text{http://www.w3.org/2001/XMLSchemainteger FacetminInclusive"1000"}^{\wedge\wedge} \text{http://www.w3.org/2001/XMLSchemainteger}$

Lead_To_Refinery

$\top \sqsubseteq \forall \text{Lead_To_Refinery} \text{DatatypeRestrictionDatatype} \text{http://www.w3.org/2001/XMLSchemainteger FacetminInclusive"1050"}^{\wedge\wedge} \text{http://www.w3.org/2001/XMLSchemainteger}$

Level_of_Metal_in_Ladle

$\top \sqsubseteq \forall \text{Level_of_Metal_in_Ladle} \text{DatatypeRestrictionDatatype} \text{http://www.w3.org/2001/XMLSchemainteger FacetmaxInclusive"40"}^{\wedge\wedge} \text{http://www.w3.org/2001/XMLSchemainteger}$

Loss_Of_Production_Time

$\top \sqsubseteq \forall \text{Loss_Of_Production_Time} \text{Datatype} \text{http://www.w3.org/2001/XMLSchemadateTime}$

Maintenance

Milling

$\sqsubseteq \text{Maintenance}$

$\exists \text{Milling} \text{Datatype} \text{http://www.w3.org/2000/01/rdf-schemaLiteral} \sqsubseteq \exists \text{LadleNr} \text{Datatype} \text{http://www.w3.org/2001/XMLSchemainteger}$

$\top \sqsubseteq \forall \text{Milling} \text{DatatypeRestrictionDatatype} \text{http://www.w3.org/2001/XMLSchemainteger FacetminInclusive"1"}^{\wedge\wedge} \text{http://www.w3.org/2001/XMLSchemainteger}$

Noted_Area

$\text{Area} \neq \text{Noted_Area}$

$\sqsubseteq \text{WhiteBoard}$

$\exists \text{Noted_Area} \text{Datatype} \text{http://www.w3.org/2000/01/rdf-schemaLiteral} \sqsubseteq \text{Pickup_Slag_Ladle}$

$\exists \text{Noted_Area} \text{Datatype} \text{http://www.w3.org/2000/01/rdf-schemaLiteral} \sqsubseteq \text{Leave_Slag_Ladle}$

$\top \sqsubseteq \forall \text{Noted_Area} \text{DatatypeRestrictionDatatype} \text{http://www.w3.org/2001/XMLSchemainteger FacetmaxInclusive"32"}^{\wedge\wedge} \text{http://www.w3.org/2001/XMLSchemainteger}$

Noted_LadleNr

$\text{LadleNr} \neq \text{Noted_LadleNr}$

$\sqsubseteq \text{WhiteBoard}$

$\exists \text{Noted_LadleNr} \text{Datatype} \text{http://www.w3.org/2000/01/rdf-schemaLiteral} \sqsubseteq \text{Ladle}$

$\top \sqsubseteq \forall \text{Noted_LadleNr} \text{DatatypeRestrictionDatatype} \text{http://www.w3.org/2001/XMLSchemainteger FacetminInclusive"1"}^{\wedge\wedge} \text{http://www.w3.org/2001/XMLSchemainteger}$

Noted_Time_For_Solidification

$\text{Noted_Time_For_Solidification} \neq \text{Time_For_Solidification}$

$\sqsubseteq \text{WhiteBoard}$

Recomended_Ladle_Temp

$\top \sqsubseteq \forall \text{Recomended_Ladle_Temp} \text{ DatatypeRestrictionDatatypehttp://www.w3.org/2001/XMLSchemainteger FacetminInclusive"300"}^{\wedge\wedge\text{http://www.w3.org/2001/XMLSchemainteger}}$

Reparations

$\sqsubseteq \text{Maintenance}$

$\exists \text{Reparations Datatypehttp://www.w3.org/2000/01/rdf-schemaLiteral} \sqsubseteq \exists \text{LadleNr Datatypehttp://www.w3.org/2001/XMLSchemainteger}$

Risks

Sandblasting

$\sqsubseteq \text{Maintenance}$

$\exists \text{Sandblasting Datatypehttp://www.w3.org/2000/01/rdf-schemaLiteral} \sqsubseteq \exists \text{LadleNr Datatypehttp://www.w3.org/2001/XMLSchemainteger}$

$\top \sqsubseteq \forall \text{Sandblasting DatatypeRestrictionDatatypehttp://www.w3.org/2001/XMLSchemainteger FacetminInclusive"1"}^{\wedge\wedge\text{http://www.w3.org/2001/XMLSchemainteger Inclusive"32"}^{\wedge\wedge\text{http://www.w3.org/2001/XMLSchemainteger}}}$

Sealed_Off_Ladle

$\sqsubseteq \text{Maintenance}$

$\exists \text{Sealed_Off_Ladle Datatypehttp://www.w3.org/2000/01/rdf-schemaLiteral} \sqsubseteq \exists \text{LadleNr Datatypehttp://www.w3.org/2001/XMLSchemainteger}$

$\top \sqsubseteq \forall \text{Sealed_Off_Ladle DatatypeRestrictionDatatypehttp://www.w3.org/2001/XMLSchemainteger FacetminInclusive"1"}^{\wedge\wedge\text{http://www.w3.org/2001/XMLSchemainteger Inclusive"32"}^{\wedge\wedge\text{http://www.w3.org/2001/XMLSchemainteger}}}$

Shift

$\sqsubseteq \text{WhiteBoard}$

$\exists \text{Shift Datatypehttp://www.w3.org/2000/01/rdf-schemaLiteral} \sqsubseteq \text{Operator_}(O)$

Slag_Ladle_Not_To_Be_Emptied

$\top \sqsubseteq \forall \text{Slag_Ladle_Not_To_Be_Emptied DatatypeRestrictionDatatypehttp://www.w3.org/2001/XMLSchemainteger FacetminInclusive"6.3"}^{\wedge\wedge\text{http://www.w3.org/2001/XMLSchemainteger}} \sqsubseteq \forall \text{Slag_Ladle_Not_To_Be_Emptied DatatypeRestrictionDatatypehttp://www.w3.org/2001/XMLSchemainteger FacetminInclusive"22.3"}^{\wedge\wedge\text{http://www.w3.org/2001/XMLSchemainteger}}$

Slag_Temperature

Solidification_Site

Tasks

$\sqsubseteq \text{topDataProperty}$

Time_For_Solidification

$\text{Noted_Time_For_Solidification} \neq \text{Time_For_Solidification}$

Time_To_Wait_If_Ladle_Full

$\top \sqsubseteq \forall \text{Time_To_Wait_If_Ladle_Full} \text{ DatatypeRestrictionDatatype}$ <http://www.w3.org/2001/XMLSchema#integer> Facetminclusive"10" \wedge <http://www.w3.org/2001/XMLSchema#integer>

Tools

WhiteBoard

topDataProperty

Individuals

Datatypes

PlainLiteral

anyURI

dateTime

double

integer