

PHD for Substance Exposure Limits and Studies
 (OV-07 Logical Data Model Subject Area)
 System Architect
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 -Comment
 This diagram depicts the substance exposure limits and the exposure studies performed to evaluate a substance's adverse environmental effects and adverse health effects.
 The ANSI standard for the Material Safety Data Sheet (MSDS) includes this information in Section 11. Toxicological Information and Section 12. Ecological Information.

Product Hazard Data for Substance Exposure Limits and Studies

SUBSTANCE
 Substance_Identifier . Material_Identifier (FK)

Substance_State_Complexity_Type_Name
 Substance_Clarity_Name
 Substance_Color_Name
 Substance_Considered_Environmentally_Persistent_Indicator
 Substance_Inert_Indicator
 Substance_Gross_Structural_Type_Name
 Substance_Radioactive_Decay_Rate
 Substance_Radioactive_Decay_Rate_Unit_Of_Measure_Identifier . Unit_Of_Measure_Identifier (FK)
 Substance_Self_Reactive_Indicator
 Substance_Solid_Percent_By_Volume_Quantity
 Substance_Solid_Percent_By_Weight_Quantity
 Substance_Stable_Indicator
 Substance_Stability_Normal_Conditions_Text
 Substance_Volatile_Organic_Compound_Volume_Percent_Quantity
 Substance_Volatile_Organic_Compound_Volume_Non_Numeric_Quantity_Text
 Substance_Volatile_Organic_Compound_Weight_Percent_Quantity
 Substance_Volatile_Organic_Compound_Weight_Non_Numeric_Quantity_Text
 Substance_Water_N-Octanol_Partition_Coefficient_Quantity

-Business Description
 A MATERIAL having no inherent limit in extent, therefore without size or shape. E.g., green paint, hydrochloric acid, dry ice, or Coke syrup.

ADVERSE-HEALTH-EFFECT
 Adverse_Health_Effect_Identifier

Adverse_Health_Effect_Category_Identifier (FK)
 Adverse_Health_Effect_Details_Text
 Adverse_Health_Effect_Name
 Adverse_Health_Effect_Prefined_Indicator
 Adverse_Health_Effect_Summary_Text
 Adverse_Health_Effect_Type_Name

-Business Description
 A potential negative consequence, changing the optimum functioning or well being of a person, that may result from exposure to a substance.

ADVERSE-HEALTH-EFFECT-CATEGORY
 Adverse_Health_Effect_Category_Identifier

Adverse_Health_Effect_Category_Details_Text
 Adverse_Health_Effect_Category_Name
 Adverse_Health_Effect_Category_Prefined_Indicator
 Adverse_Health_Effect_Category_Summary_Text

-Business Description
 A classification that can be applied to the ADVERSE-HEALTH-EFFECTs of poisons on living creatures. Commonly used categories include Eye Effects, Skin Effects, Acute Oral Effects, Acute Inhalation Effects, Subchronic Effects, Chronic Effects, Carcinogenic Effects, Mutagenicity, Epidemiologic Effects, Teratogenic Effects, Reproductive Effects, and Neurotoxic Effects.

SUBSTANCE-ADVERSE-HEALTH-EFFECT
 Substance_Identifier (FK)
 Adverse_Health_Effect_Identifier (FK)

Substance_Adverse_Health_Effect_Details_Text
 Substance_Adverse_Health_Effect_Name
 Substance_Adverse_Health_Effect_Summary_Text
 Substance_Adverse_Health_Effect_Type_Name

-Business Description
 A scientifically determined consequence, changing the optimum functioning or well being of living creatures, resulting from exposure to the relevant SUBSTANCE.

EXPOSURE-STUDY-SUBSTANCE-ADVERSE-HEALTH-EFFECT
 Exposure_Study_Identifier (FK)
 Substance_Identifier (FK)
 Adverse_Health_Effect_Identifier (FK)

Exposure_Study_Substance_Adverse_Health_Effect_Description_Text
 Exposure_Study_Substance_Adverse_Health_Effect_Summary_Text

-Business Description
 A SUBSTANCE-ADVERSE-HEALTH-EFFECT evaluated by an EXPOSURE-STUDY.

ADVERSE-ENVIRONMENTAL-EFFECT
 Adverse_Environmental_Effect_Identifier

Adverse_Environmental_Effect_Details_Text
 Adverse_Environmental_Effect_Name
 Adverse_Environmental_Effect_Prefined_Indicator
 Adverse_Environmental_Effect_Summary_Text

-Business Description
 A potential negative consequence, changing the state of the world at large, including both nature or constructed items, that may result from exposure to a substance.

EXPOSURE-STUDY
 Exposure_Study_Identifier

Exposure_Study_Conducting_Organization_Identifier . Organization_Unique_Identifier (FK)
 Exposure_Study_Details_Text
 Exposure_Study_Name
 Exposure_Study_Summary_Text

-Business Description
 A scientifically conducted empirical evaluation of the consequences of the direct or indirect contact with one or more relevant SUBSTANCES by persons, other living creatures, and the world at large, including both nature and constructed items.

SUBSTANCE-ADVERSE-ENVIRONMENTAL-EFFECT
 Substance_Identifier (FK)
 Adverse_Environmental_Effect_Identifier (FK)

Substance_Adverse_Environmental_Effect_Details_Text
 Substance_Adverse_Environmental_Effect_Name
 Substance_Adverse_Environmental_Effect_Summary_Text
 Substance_Adverse_Environmental_Effect_Type_Name

-Business Description
 An ADVERSE-ENVIRONMENTAL-EFFECT that that has been determined can result from exposure of the world at large, including both nature and constructed items, to the SUBSTANCE.

EXPOSURE-STUDY-SUBSTANCE-ADVERSE-ENVIRONMENTAL-EFFECT
 Exposure_Study_Identifier (FK)
 Substance_Identifier (FK)
 Adverse_Environmental_Effect_Identifier (FK)

Exposure_Study_Substance_Adverse_Environmental_Effect_Description_Text
 Exposure_Study_Substance_Adverse_Environmental_Effect_Summary_Text

-Business Description
 A SUBSTANCE-ADVERSE-ENVIRONMENTAL-EFFECT evaluated by an EXPOSURE-STUDY.

ORGANIZATION
 Organization_Unique_Identifier

Organization_Name
 Organization_Description_Text
 Organization_Category_Code
 Organization_Primary_Industry_Category_Code
 Organization_Primary_Activity_Code
 Organization_Electronic_Fund_Transfer_Account_Number
 Organization_Tax_Identifier
 Organization_Classification_Code
 Organization_Duration_Type_Code
 Organization_DUNS_Number

-Business Description
 An administrative structure with a mission.

SUBSTANCE-EXPOSURE-LIMIT
 Substance_Identifier (FK)
 Substance_Exposure_Limit_Type_Organization_Identifier (FK)
 Substance_Exposure_Limit_Type_Promulgating_Organization_Identifier . Organization_Unique_Identifier (FK)
 Substance_Exposure_Limit_Start_Date

Substance_Exposure_Limit_Description_Text
 Substance_Exposure_Limit_Quantity
 Substance_Exposure_Limit_Stop_Date
 Substance_Exposure_Limit_Timeframe_Days_Quantity
 Substance_Exposure_Limit_Timeframe_Hours_Quantity
 Substance_Exposure_Limit_Timeframe_Minutes_Quantity
 Substance_Exposure_Limit_Timeframe_Seconds_Quantity
 Substance_Exposure_Limit_Unit_Of_Measure_Identifier . Unit_Of_Measure_Identifier (FK)

-Business Description
 A recommended maximum to the amount of direct contact by a person to the relevant SUBSTANCE. The ORGANIZATION that promulgates the recommendation would typically be a governmental organization, such as a U.S. federal agency, a U.S. State government organization, a local government, a nongovernmental agency, or a manufacturer, but it could be any reputable organization with credibility.

SUBSTANCE-EXPOSURE-LIMIT-TYPE
 Substance_Exposure_Limit_Type_Name
 Substance_Exposure_Limit_Type_Organization_Identifier . Organization_Unique_Identifier (FK)

Substance_Exposure_Limit_Type_Description_Text
 Substance_Exposure_Limit_Type_Short_Name
 Substance_Exposure_Limit_Type_Skin_Indicator

-Business Description
 A kind of threshold that can apply to a SUBSTANCE-EXPOSURE-LIMIT as established by a specific ORGANIZATION. Standard threshold types are for:

- OSHA permissible exposure limit (PEL) as a time weighted average (TWA) of concentration of a substance for an 8-hour day of exposure;
- OSHA PEL as a ceiling (C) or peak value that should never be exceeded;
- OSHA short term exposure (STEL) of no more than 15 minutes at a time and no more than 60 minutes in a day;
- NIOSH recommended exposure limit (REL) as a TWA for a normal working lifetime; and
- NIOSH immediately dangerous to life or health (IDLH) limit, an atmospheric chemical concentration that is likely to cause death, permanent adverse health effects of prevent escape.

UNIT-OF-MEASURE
 Unit_Of_Measure_Identifier (AK1)

Unit_Of_Measure_Code
 Unit_Of_Measure_Name
 Unit_Of_Measure_Description_Text

-Business Description
 A scale employed to describe a dimension, quality, or capacity determined by measuring. Example of units of measure include: Feet; Inch; Square Foot; Yard; Gallon; Centimeter.

has adverse health effect identified by

has adverse environmental effect identified by

has maximum exposure identified by

identifies quantified limit unit for

identifies quantified unit of radioactive decay for

has substance shown by

has supporting study shown via

explains

explains

has supporting study shown via

promulgates

categories

promulgates

categories

conducts