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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/Z 18975.4-2023

Industrial automation systems and integration - Integration of life-cycle data for process plants including oil and gas production facilities - Part 4: Initial reference data

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Preview: page 1 of 5 shown, full document available. Complete English PDF, instant download:
https://chinastandards.org/standards/gb-z-18975-4-2023

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Table of Contents

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1.Structure and Drafting Rules of Standardization Documents"

Drafting.

This document is GB/T (Z) 18975 "Industrial automation systems and integrated process plants (including oil and gas production facilities) Life

Part 4 of Periodic Data Integration. GB/T (Z)18975 has released the following parts.

---Part 1.Overview and basic principles;

---Part 2.Data Model;

---Part 4.Initial reference data;

---Part 10.Compliance testing;

---Part 12.Lifecycle integration ontology represented by Web Ontology Language (OWL);

---Part 13.Integrated asset planning life cycle.

This document is equivalent to ISO /T S15926-4.2019 "Industrial automation systems and integrated process plants (including oil and gas production)"

Production Facilities Lifecycle Data Integration Part 4.Initial Reference Data. The file type is adjusted from ISO 's technical specifications to my country's national

National standardization guidance technical documents.

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents.

Introduction

GB/T (Z) 18975 is the process industry life cycle data integration standard. Its purpose is to provide a common language for computer systems to

Achieve interoperability.

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"Integration" is intended to consist of the following parts.

---Part 1.Overview and basic principles. The purpose is to describe the scope and functions of GB/T (Z) 18975 and its basic principles.

---Part 2.Data Model. The purpose is to define a conceptual number for computer representation of process plant life cycle technical information.

data model.

---Part 3.Geometric and topological reference data. The purpose is to specify the geometry and topology data that can be recorded using Part 2.

Ho and topology concepts.

---Part 4.Initial reference data. The purpose is to provide an initial set of core reference data items for a process factory.

---Part 6.Reference data development and verification methods. The purpose is to provide a method for managing process plant reference data.

---Part 7.Distributed system integration implementation method. template method. The purpose is to provide a method based on the data model in Part 2

Template method for row data integration.

---Part 8.Distributed system integration implementation method. Network Ontology Language (OWL) implementation. The purpose is to provide for the use of Part 7

It includes specifications for data integration using RDF (Resource Description Framework) and OWL (Web Ontology Language).

---Part 10.Compliance testing. The purpose is to describe the compliance with each part of GB/T (Z) 18975.

---Part 11.Simplified industrial use of reference data. The purpose is to use RDFS (Resource Description Framework schema, RDF

Schema) defines a simplified approach to process industry use of reference data.

---Part 12.Lifecycle integration ontology represented by Web Ontology Language (OWL). The purpose is to specify the use of OWL representation

An ontology that integrates process plant industrial data throughout its entire life cycle.

---Part 13.Integrated asset planning life cycle. The purpose is to provide a process plant asset planning ontology and derivatives from this ontology

An XMLschema (XML schema) for asset planning data exchange.

The data model of GB/T (Z) 18975 is designed to be used in conjunction with reference

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Preview: page 3 of 5 shown, full document available. Complete English PDF, instant download:
https://chinastandards.org/standards/gb-z-18975-4-2023

data, that is, many users, production facilities or

A standard instance for representing information common to both. Support for specific lifecycle activities depends on using appropriate reference numbers in conjunction with the data model

according to. This document gives an initial set of reference data items.

This document handles English technical words in the following manner.

---In order to maintain the original meaning of English and facilitate understanding of the meaning of the word, the meaning of each entity in ISO /T S15926-4.2019 is

For English words with the same meaning, the Chinese translation is used when appearing as a title in this document, and the English word is mainly used in the text. When it appears for the first time or

When necessary, bracket the Chinese translation and place it after the English translation.

---For the computer languages such as OWL and RDF that this document supports, this document does not list Chinese translations.

---All OWL descriptions of this document and international standard numbers in files automatically generated by OWL development tools still remain

constant.

Industrial automation systems and integrated process plants (including

Oil and gas production facilities) life cycle data integration

Part 4.Initial Reference Data

1 Scope

This document specifies an initial set of core reference data items that can be used to document process plants, including oil and gas production

facilities).

This document applies to.

---Core classes for process plants (including oil and gas production facilities);

Note 1.Reference data items can be divided into core categories, fact categories, commodity categories and manufactured product categories. Reference data items may also be standard or proprietary classes. Reference data

See Section 3.1 for definitions of item type terms. See Appendix D for the types of reference data items.

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Note 2.The core classes defined in this document can be used in ISO 15926-2, ISO /T S15926-7, ISO /T S15926-8, ISO /T S15926-11, ISO /

TS15926-12, ISO 15926-13 and ISO 10303-221.

---The unique name of each reference data item;

---Definition of each reference data item;

---Reference the relationship between subcategories and categories of data items;

---Entities that can be used to record each reference data item in ISO 15926-2.

Note 3.Each reference data item that is a class is directly or indirectly a subclass of an entity in ISO 15926-2.

This document does not apply to.

---Data requirements for additional reference data items;

---Procedures to be followed to register and maintain additional reference data items.

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2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations

For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to

this document.

GB/T 18975.2-2008 Industrial automation systems and integrated process plants (including oil and gas production facilities) life cycle

Issue Data Integration Part 2.Data Model (ISO 15926-2.2003, IDT)

3.1 Terms and definitions

The following terms and definitions apply to this document.

3.1.1

class class

A category or division of things based on one or more inclusion and exclusion criteria.

Note 1.A class does not have to have any members (things that satisfy its membership criteria).

Note 2.Since this document uses the space-time paradigm to define individuals, all classes

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