

GP 15-08-03	Combustible and Toxic Vapor Detection Systems	December 2004
-------------	---	---------------

Combustible and Toxic Vapor Detection Systems

GP 15-08-03

Scope

- 1) [I] This Global Practice (GP) covers the selection, specification, design, and installation of combustible and toxic vapor detection systems. This GP does not cover extractive-type vapor monitoring systems or personnel monitors for TLV (Threshold Limit Value) exposure monitoring.
 - 2) [I] An asterisk (*) indicates that a decision by the Owner's Engineer is required or that additional information is furnished by Purchaser.
-

Downstream, Chemical, Downstream Imperial Oil	For ExxonMobil Use Only	Version 2.0.0
Page 1 of 11	©ExxonMobil Development Company	



Documents

Document Sharing Hub

GP 15-08-03	Combustible and Toxic Vapor Detection Systems	December 2004
-------------	---	---------------

Table of Contents

1. Required References	3
1.1. Global Practices–ExxonMobil Engineering Practices	3
2. Additional Requirements	3
2.1. API–American Petroleum Institute	3
2.2. ISA–Instrumentation, Systems, and Automation Society.....	3
3. Documentation.....	4
4. Materials	4
5. Design.....	5
5.1. Sensor Types.....	5
5.2. Design Considerations.....	7
6. Performance.....	8
7. Outputs and Alarms	10
8. Installation Guidelines	12
9. Calibration and Testing.....	13
10. Application	13
Record of Change.....	15
Attachment: Purpose Codes Definitions.....	16

DNST, CHEM, DIOL	For ExxonMobil Use Only	Version 2.0.0
Page 2 of 11	©ExxonMobil Development Company	 Documents Document Sharing Hub

GP 15-08-03	Combustible and Toxic Vapor Detection Systems	December 2004
-------------	---	---------------

1. Required References

[I] This Section lists Practices and Standards that are generically referenced and assumed to be a part of this document. Unless otherwise specified herein, use the latest edition.

1.1. Global Practices–ExxonMobil Engineering Practices

GP 04-03-03	Shelters for Process Analyzers
GP 15-07-01	Electric Power Branch Circuit Design for Instrumentation
GP 15-07-03	Alarm Systems
GP 16-01-01	Area Classification and Related Electrical Design for Flammable Liquids, Gases or Vapors
GP 20-01-01	Inspection of Equipment and Materials

2. Additional Requirements

- 1) [I] Vapor detection systems shall meet all applicable local performance, electrical, and hardware codes and regulations.
- 2) * [I], [O] All vapor detection system proposals shall be reviewed by the Owner's Engineer.
- 3) [I] The following Practices and Standards shall be used with this Practice as specified by Purchaser.

2.1. API–American Petroleum Institute

API RP 555	Process Analyzers
------------	-------------------

2.2. ISA–Instrumentation, Systems, and Automation Society

ISA 12.13.01	Performance Requirements for Combustible Gas Detectors
ISA RP12.13.02	Recommended Practice for the Installation, Operation, and Maintenance of Combustible Gas Detection Instruments-IEC 61779-6

DNST, CHEM, DIOL	For ExxonMobil Use Only	Version 2.0.0
Page 3 of 11	©ExxonMobil Development Company	



Documents

Document Sharing Hub

GP 15-08-03	Combustible and Toxic Vapor Detection Systems	December 2004
-------------	---	---------------

ISA 92.0.01, PART I	Performance Requirements for Toxic Gas-Detection Instruments: Hydrogen Sulfide
ISA RP92.0.02 PT II	Installation, Operation, and Maintenance of Toxic Gas-Detection Instruments: Hydrogen Sulfide Replaces ISA-RP12.15, Part II

3. Documentation

- 1) * [O], [M] The number of copies and delivery schedule of instruction manuals shall be specified by the Owner's Engineer. The manuals shall cover all components and where appropriate include the following for the system delivered:
 - a) Internal wiring diagrams.
 - b) Interconnecting diagram indicating all connections and shielding requirements. Markings for wire color coding or numbering and for terminal identification shall be identical to those actually on the equipment supplied.
 - c) Mechanical outline and mounting drawings.
 - d) Detailed installation instructions.
 - e) Operating, start up and shut down instructions.
 - f) Calibration procedure, recommended validation and calibration frequency.
 - g) Complete parts list showing, and corresponding to, the model numbers of the actual components of the vapor detection systems.
 - h) Recommended spare parts list for two years' operation.
 - i) Troubleshooting procedures.
 - j) Performance charts and factory inspection data sheets.
 - k) Warranty documentation.
 - l) Software requirements.
- 2) * [O], [E] For vapor detection systems containing radioactive sources, all details of the source shall be forwarded to the Owner's Engineer within four weeks of order placement to allow site safety and local operating permits to be obtained.

4. Materials

[O], [M] Gas detection sensors, their components or remote control units specifically intended for use in the presence of corrosive vapors or gases, or which may produce corrosive by-products as a result of oxidation or other chemical process, shall be constructed of materials resistant to corrosion and/or suitably protected against corrosion.

DNST, CHEM, DIOL	For ExxonMobil Use Only	Version 2.0.0
Page 4 of 11	©ExxonMobil Development Company	



Documents

Document Sharing Hub