



ISO 14001 and Green Chemistry

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Overview

- *What is the ISO 14001 Standard?*
- *How does it relate to safer chemical use?*
- *Case History - Portland General Electric*



What is the ISO 14001 Standard?

It is....

a framework for continual environmental improvement using the Plan-Do-Check-Act management system cycle.



ISO14001 - Quick facts

- Developed by the Switzerland-based International Organization for Standardization – world's largest developer of international standards. (16,000+ standards)
- First published in 1996, revised in 2004
- Part of a family of standards (Auditing, Labeling, LCA)
- Modeled after ISO 9000 - Quality management system standard
- Third party certification for ISO 14001





PDCA – What does it mean?

PLAN – Identify and select improvement projects, develop process for doing so.

DO – Launch the projects and develop appropriate support systems.

CHECK – Check progress of the efforts, monitor support systems, and take preventive and corrective action as needed.

ACT – Evaluate the effectiveness of the projects and the overall effort.



ISO 14001 Elements

PLAN

- Environmental Policy
- Environmental Impacts
- Legal and Other Requirements
- Objectives, targets, and programs

DO

- Resources, Roles, and Responsibility
- Competence, Training, Awareness,
- Communications

- Documentation
- Control of Documents
- Operational Control
- Emergency Response

CHECK

- ◆ Monitoring and Measurement
- ◆ Compliance
- ◆ Preventive/Corrective Action
- ◆ Control of Records
- ◆ Internal Audit

ACT

- Management Review



What does the standard look like?

- 23 pages total with introduction, definitions, requirements, appendices and bibliography
- 5 pages of requirements for the 17 elements
- Each element typically requires a procedure describing the process - the HOW
- Not prescriptive - not the WHAT



***How does ISO 14001 relate to safer
chemical use?***



- Develop full ISO 14001 EMS with green chemistry focus
- Use as checklist to good chemical management
- Use key EMS elements to meet specific green chemistry goals
 - Design toxic chemicals out of product or process
 - Reduce the total number of chemical products
 - Reduce the overall toxicity
 - Eliminate specific ‘harm’ classes (i.e. carcinogens)



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Case History
Portland General Electric (PGE)



What did PGE do?

- Evaluated Chemical impacts
- Set objectives and targets
 - reduce # of Chemicals
- Trained staff - chemical definition, procurement
- Documented practices; operational controls
- Checked progress with audits



Goal 1: Reduce the Number of Products

Specific Target: Reduce number of plant products by 50 products (~10%) by April 30, 2007.

Long term goal: Identify and maintain optimal number of products for inventory.

Task	Who is responsible?	By when?
Identify recommended target products for elimination from Product Catalog	Ray, Warehouse	June 1, 2006
Coordinate shops' review of list of recommended products for elimination. Shops: Mechanical, Electrical, Instrument and Control, Chemistry, Operations)	Brian, Maintenance Supervisor	September 1, 2006
Develop disposal plan	Tom, Corporate Environmental	October 1, 2006
Complete the removal of products	Ray, Warehouse	Jan.1, 2007



ENTER MSDSs into SYSTEM

Steps	Person	Frequency
Chemicals arrive onsite through P-card purchase. <ul style="list-style-type: none"> • Review P-card monthly invoices for purchases of products containing chemicals. • Send reminder to purchasers of all products with chemicals to send in MSDSs. • Forward MSDS to Admin Assistant. 	Supervisors Supervisors Purchaser	Monthly As-needed As-needed
Chemical arrives onsite through storeroom. If chemical doesn't arrive with MSDS <ul style="list-style-type: none"> • Notification of Material coordinator • Order MSDS Forward MSDS to Admin Assistant.	Storeroom Receiver Material Coord. Material Coord.	As-needed
Check to see if the MSDS is already in Dolphin (including revision date). If new or revised: <ul style="list-style-type: none"> • make copies for plant; • send to Corporate Safety and Health for entry. If the same: No further action.	Admin Assistant	As-needed
Send notification to Admin. Assist. that MSDS is in system	Corporate Safety and Health	As-needed



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