



▲ Parts being machined at Accurcast, a division of Meridian Technologies Inc. in Wallaceburg, Ontario. The plant produces high pressure die cast components and various parts for transmissions, engines and interiors for the auto industry.

Although ISO 14001 certification is catching on in Canada, our manufacturers currently account for only 90 of the 5700 registrations worldwide. Believing there's a strong business case to be made for achieving the standard, the Automotive Parts Manufacturers' Association is taking steps to ensure its members get on board.

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Released in 1996 as part of the ISO 14000 series of environmental management standards, the ISO 14001 Environmental Management System (EMS) Standard is aimed at providing organizations with an effective EMS that can be integrated with other management requirements, and assisting organizations in achieving their environmental and economic goals.

ENVIRONMENTAL PERFORMANCE IN THE AUTO PARTS INDUSTRY: RAISING THE BAR

The number of ISO 14001 registrations is growing rapidly in Canada's manufacturing industries. However, we are well behind Japan, the United Kingdom and Germany, which are leading the way in numbers of registrants. In Canada, the most active sectors of ISO 14001 registration are electronics, automotive parts, pulp and paper, chemical and manufacturers for export.

A brief overview

Companies that have implemented the ISO 9000 series of standards will recognize many of the ISO 14001 standard elements. Whereas the ISO 9000 series focuses on product quality and systems, ISO 14001 focuses on the environmental aspects and impacts of manufacturing and supporting activities, such as maintenance and waste management. Table 1 lists the similarities between ISO 14001 and ISO 9002, which deals with quality assurance in production and installation.

The ISO 14001 standard requires companies to identify "environmental aspects" and the "environmental impacts" they cause by analyzing the process flow of their facilities. Aspects may include air emissions, wastewater effluents, solid wastes, the potential for spills, energy and resource consumption. Environmental impacts may include air pollution, groundwater or soil contamination, resource depletion, habitat destruction and nuisances (e.g. noise, vibration and odour).

Once environmental aspects and their impacts have been identified, companies identify "significant" environmental aspects using such qualitative tools as risk matrices, and failure mode and effects analysis (FMEA). Prescribed by QS-9000 (a version of ISO 9002 modified for the auto industry), FMEA is used in the automotive industry to improve product quality and dependability and to identify risk. In environmental terms, FMEA can be used to quantify the potential severity and frequency of an environmental aspect, as well as a company's ability to detect it.

Significant environmental aspects are those that rate high in an FMEA or other ranking system. A typical manufacturing facility may have over 200 aspects, but only 10-15 would be ranked high enough to be determined significant. To address significant aspects identified under the standard, companies must set and implement continuous improvement objectives and targets. These may include reducing

hazardous and solid waste and use of raw materials, and energy conservation.

To illustrate this methodology, consider the unloading of a hazardous liquid at a receiving dock. Severity would be ranked high if a spill occurred and the liquid entered an unprotected storm drain. Potential frequency and the ability to detect a spill would be high if the drums were unloaded often without appropriate management controls. By either removing or covering the storm drain during unloading and implementing improved management controls, such as checking the drums for leaks prior to unloading, the environmental risk would be dramatically reduced.

ISO 14001 & the auto parts industry

The Automotive Parts Manufacturers' Association (APMA) has 400 members, which account for 90 per cent of independent parts production in Canada. In 1998, the automotive parts industry employed 95,000 people and had sales of \$27 billion.

There are currently 15 APMA facilities registered to the standard, and at least 40-50 that should be completed by the end of 1999.

diligence and proactiveness. For example, recently, GM asked its primary suppliers to implement a verifiable environmental management system, such as ISO 14001 or "Responsible Care," which was launched by the Canadian Chemical Producers' Association in the early 1980s to address continuous improvement of health, safety and environmental performance. Saturn has asked suppliers to provide examples of pollution prevention case studies. Chrysler and Volvo have mandated the elimination of specific chemicals from their auto parts suppliers' manufacturing processes.

Finally, automotive dealers are beginning to register to ISO 9002, partly because they are aware that the general public recognizes its value. How much longer until they recognize the value of ISO 14001?

Benefits of registration

In general, companies that implement ISO 14001 experience various benefits as a result, including:

- ◆ *assuring customers and other stakeholders of environmental commitment.* Virtually all major industries are realizing that improved environmental performance and communication are important today. Although environmental management may not cur-

Table 1. Similarities between ISO 9002 & 14001

ISO 9002	ISO 14001
Quality Policy	Environmental Policy
Organization	Structure and Responsibility
Management Representative	Management Representative
Training	Training, Awareness and Competence
Document and Data Control	Document Control
Process Control	Operational Control
Inspection and Testing	Monitoring and Measurement
Corrective and Preventive Action	Non-conformance and Corrective and Preventive Action
Control of Quality Records	Records
System Audit	EMS Audits
Management Review	Management Review

Why the push for certification? Automakers are starting to implement ISO 14001 themselves. They are also putting pressure on the auto parts industry to improve its environmental performance, to help ensure an appropriate level of due

currently be fully integrated into most manufacturers' operating strategies, the trend is heading in that direction. The ISO 14001 standard is a good starting point. Whether you manufacture consumer products or supply parts to an industry, the



◀ A plant worker at Triton Manufacturing in Mississauga uses a transfer press to stamp out auto parts. Triton is currently in the process of obtaining ISO 14001 certification.

environment is starting to play an important role.

The process of implementing ISO 14001 helps manufacturers understand and improve their environmental performance, thereby enhancing their competitive position in the future. Companies that implement the standard will be ready to support their customers' environmental needs sooner, rather than later.

◆ **reduced costs.** A critical examination of a facility's environmental aspects and impacts can result in substantial waste reduction, process improvements and cost savings. Many manufacturers have been pleasantly surprised by the cost savings they were able to achieve by going through this process.

As a result of identifying and quantifying environmental aspects, cost reductions are commonly achieved through reduced: energy consumption, waste oils and solvents (through recycling and material substitution), use of raw materials (through process modification and/or material substitution) and solid waste (through recycling and reduction).

Clearly, it is important to identify both environmental aspects and their real costs. ◆ **reduced liability.** The likelihood of an incident occurring decreases, once potential environmental impacts are identified and managed. For example, before identifying potential aspects and impacts, management and operators may not be aware of the potential for hazardous liquids to be accidentally released to a storm sewer during unloading. Once such potential incidents are identified, they

can be addressed accordingly and prevented.

However, in the event that an accidental release to the environment occurs, a company may be able to use a due diligence defence if charges are laid. Therefore, with an EMS in place, not only is the risk of an accidental release significantly decreased, but the potential financial and legal impact may also be reduced because due diligence can be proven.

◆ **employee buy-in.** ISO registrars have been impressed by the level of employee support for ISO 14001. Initially an overlooked benefit, employee buy-in may be one of the most important benefits of an EMS. Unless trained, most employees will remain unaware of the actions they can take to minimize environmental impacts. Due to the ISO 14001 requirement that employees be knowledgeable about environmental impacts that could result from their activities, they become aware that they can contribute to minimizing these impacts, as well as to other environmental projects in the plant.

Tips on implementation

Kuntz Electroplating Inc. (KEI), Meridian Technologies Inc.'s Jutras Division and M.S.M. (a division of Tesma International) are three APMA members who were registered to ISO 14001 during 1998.

KEI electroplates automotive components, such as wheels and bumpers, at its Kitchener facility. It was committed to environmental protection long before the concept of a formalized EMS such as ISO 14001. Designing an EMS based

on the standard was a logical step for the company.

Meridian, which uses the standard as a tool to develop good operating practices, introduced ISO 14001 as a business plan directive in June 1997. Located in Scarborough, Meridian's Jutras Division operates 10 die casting machines and has full machine centre capability.

M.S.M.'s manufacturing capabilities include 16 presses, extensive computerized numeric control machining and heat treating. M.S.M. is located in Woodbridge.

The environmental coordinators at the three companies offer the following advice on implementing ISO 14001.

◆ As a first step, complete a gap analysis, which is a benchmark assessment that identifies the gaps between ISO 14001 requirements and your company's current practices. Don't be afraid to be honest about the results with other staff.

◆ Since corporate environmental policies require buy-in and approval from senior management to be successfully implemented, senior managers should be represented on your company's ISO 14001 steering committee. Support has to come from the top.

◆ All employees (including management, supervisors and hourly employees) should receive one day of introductory training. Auditors should receive two-day auditor training, and the lead auditor should attend a five-day lead auditor program. These courses are offered by such organizations as the Quality Management Institute (a division of the Canada Standards Association, with branches in Cooksville and Sudbury) and KPMG.

◆ Use creative tools to promote and educate plant employees about the standard and its benefits, such as poster campaigns and monthly quizzes.

◆ Incorporate existing management tools when implementing an ISO 14001-based EMS. These tools may include the use of FMEA when identifying significant environmental aspects.

◆ There are many links between ISO 14001 and ISO 9002 (see table 1). If you are already registered to ISO 9002, use these links; do not reinvent the wheel. Because of the overlap, implementing ISO 14001 will probably require roughly half the time and cost of implementing ISO 9002.

Strategies to promote certification

The APMA is using several strategies to help its members implement ISO 14001, some of which may be helpful to other companies and industry associations.

The strategies are:

◆ **guidelines.** The Ontario Ministry of Environment's Environmental Partnerships Branch is developing 10 ISO 14001



▲ High pressure die casting machines produce magnesium parts at Meridian Technologies Inc.'s Strathroy, Ontario, division.

implementation guidelines in partnership with industry associations. The automotive parts sector guideline was also developed with the assistance of the Canadian Standards Association (CSA). It will be released this month as *Document Plus 1146: Guide to ISO 14001 Implementation in the Automotive Parts Manufacturing Sector* (to order copies, contact Katie Altoft at the CSA, (416) 747-4080). Some of these guidelines' practical elements include: examples of generic process flow diagrams (illustrating activities, environmental aspects and their impacts), assistance in achieving environmental objectives and targets, lists of applicable legislation, identification of training needs and examples of written procedures.

The guidelines are designed to assist industries to implement ISO 14001 cost-effectively and efficiently. For information on the sectors for which guidelines are being developed and their status, contact Simona Gasparetto, P.Eng., (416) 327-1484 or Parkash Mahant, P.Eng., (416) 327-1445 at the environment ministry.

◆ **implementation workshops.** Over 125 people from 30 companies have benefited

from four APMA ISO 14001 implementation workshops since May 1998. The two-day workshop takes participants through each ISO 14001 element. They are required to complete a gap analysis for their own facility during the workshop, as well as exercises involving policy development, identifying environmental aspects and impacts and training needs, and setting objectives and targets.

Workshop guest speakers include ISO

14001 registrars and APMA members registered to the standard, who share their experience. Workshops also include a session on environmental performance indicators (EPIs). The environment ministry has funded the development of a guide that addresses EPIs in detail, which is titled *Environmental Performance and Competitive Advantage*. To order copies, contact Ana Rosati at (416) 327-7721.

◆ **environmental engineering students.** Students enrolled in co-op environmental engineering programs are an excellent resource for companies working toward meeting the requirements of ISO 14001. With training, they are capable of completing a variety of tasks related to implementing a company's EMS, such as coordinating the identification of environmental aspects and impacts, identifying related costs, drafting procedures and identifying applicable legislation.

The APMA has helped place nine co-op students at eight different facilities since May 1998.

◆ **plant visits.** Although there are some competitive issues, generally there is a great degree of cooperation and information

sharing among APMA members. With this in mind, the APMA coordinates "plant visits" among members. Any industry member interested in visiting other companies simply contacts the APMA to find out which members are willing to meet in their region. To date, over 20 companies have benefited from this service.

◆ **industry magazines.** *Industry Outlook*, the APMA's monthly membership publication, now includes case studies from

member companies sharing their experiences on ISO 14001 implementation. *Industry Outlook* is distributed to senior executives in both the automotive parts and original equipment manufacturer (OEM) sectors.

Taking the plunge

For companies registered to ISO 9000, ISO 14001 is the next logical step. It is a well designed starting point for industry to achieve improved environmental management as it approaches the next millennium.

There are a number of tools available to make your journey more efficient and cost effective. Industry associations can play a supportive role in this process. ◆

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