Tools for Quality Management

For an ISO compliant Quality Management System that includes "End-of-Waste" procedures
Preface

With these Tools for Quality Management the Bureau of International Recycling aims to assist recyclers, whether members of BIR or customers of BIR members, to demonstrate their Quality Management. BIR stands for free and fair trade in recyclables and recycled materials and maintains that any company that is properly licensed, permitted or otherwise authorised by its local, state or national authority to carry out its business should not be hindered in accessing its required material infeed whether from national or foreign suppliers. However, regarding international trade in materials classified as waste and scrap or product, the Competent Authorities of certain importing countries require proof that the exporting company maintains a certified Quality Management System. Customers may also require their suppliers to have an applicable Quality Management System.

Here the BIR provides via the internet for all, and in hard copy for its members, the necessary information for companies in the waste management sector, the recovery and recycling sector of scrap collectors, sorters, processors and metal-works and foundries to implement an ISO Quality Management System. Furthermore, this guide is the first Quality Management System to incorporate end-of-waste procedures complementary to the Council of the European Union’s Regulation (EU) No 333/2011, such elements are colour coded dark blue. Besides these quality criteria for End-of-Waste, to benefit from the intended regulatory relief of “End-of-Waste” Recovery and Recycling sector operators under EU jurisdiction must comply with the Regulations' associated specifications and standards and other legal requirements. Recyclers not under the jurisdiction of the EU may choose whether or not to use these End-of-Waste quality elements dependent on their own assessment of their added value to their company’s Quality Management System.

Therefore the tools in this guide should be useful to those companies that import or export materials classified as waste and scrap or product, and also those companies under the jurisdiction of the EU that assure they recycle materials from end-of-life goods and scrap that are classified as waste into quality assured materials that are classified as product.

Companies may then show, after implementation, verification and certification that they have an applicable Quality Management System.

This implementation guide with the basic elements of ISO 9001 is complementary to any tailored sectoral Quality Management System, and to any already developed national ISO based system, enabling the End-of-Waste quality criteria to be incorporated into those tailored or national systems taking into account the size of the enterprise, especially the situation of Small and Medium sized Enterprises (SMEs), the type and amount of wastes, the nature of the operation and their domestic legislation.

The intention of the BIR is to follow up this initiative with further workshops at its biannual Conventions and to gather experience from companies and national associations.

BIR thanks Mr. Frans Bijlhouver MBA BSc, Quality Consultants (www.qualityconsultants.nl) for compiling these Tools for Quality Management.

Ross Bartley  
Environmental & Technical Director  
Bureau of International Recycling
## Contents

1 Preface ........................................................................................................................... 1  
2 Contents; No warranty and disclaimer of liability .............................................................. 3  
4 What is needed and what is already available? ................................................................. 10  
5 End-of-Waste quality criteria and it’s implications for the Recycling Industry ................. 13  
6 To determine the Quality Policy and the Objectives ....................................................... 16  
7 Identify and define the key processes in your company .................................................. 17  
8 Determine the gaps between what you have and what you need ...................................... 18  
9 Writing the Quality Manual ............................................................................................. 31  
10 Modify existing Procedures and Job Instructions and write new ones ............................ 46  
11 Preparing the Required Quality Procedures .................................................................. 48  
12 Continual Improvement .................................................................................................. 61  
13 The Implementation of the QMS .................................................................................... 63  
14 References .................................................................................................................... 68  
15 Annexes  
   Annex 1 Monitoring for presence of unwanted radioactive contamination ..................... 69  
   Annex 2 Example certificate of shipment monitoring .................................................... 73  
   Annex 3 Example of EU Statement of Conformity with the end-of-waste criteria .......... 74  

### No warranty and disclaimer of liability

These tools are provided on an “as is” basis, without warranties or conditions of any kind, either expressed or implied including, without limitation, any warranties or conditions of title, non-infringement, merchantability or fitness for purpose.

Each recipient is solely responsible for determining the appropriateness of using and distributing these tools and assumes all risks including but not limited to the risks and costs of errors, compliance with applicable laws, and interruption of operations.

Neither recipient nor any contributors shall have any liability for any direct, indirect, incidental, special, exemplary, or consequential damages (including without limitation lost profits), however caused and on any theory of liability, whether in contract, strict liability, or tort (including negligence or otherwise) arising in any way out of the use or distribution of these tools even if advised of the possibility of such damages.
Why a Quality Management System for the Waste Management, Recovery and Recycling Industry?

To have a Quality Management System (QMS) according to ISO-9001:2008 in place in your company is always a good idea, simply because it will give you many advantages such as complying with an increasing number of customers’ requirements for a QMS, besides improving your company’s business management system, your organizational performance and increasing the global recognition of your company so to be able to compete in both domestic and world markets.

As an example of customer requirements, the 2009 Chinese Regulations Governing the Inspection, Quarantine and Supervision of Imported Solid Scrap Usable as Raw Materials require its new registrants to have a certified QMS such as ISO 9001. Furthermore the Council of the European Union’s Regulation (EU) No 333/2011 establishing criteria when ferrous and aluminium scrap metal cease to be waste requires that EU waste management, recovery and recycling companies that wish to gain relief through end-of-waste for their products have a certified QMS with documented procedures concerning particular aspects.

This Implementation Guide is dedicated to the small and medium size enterprises in the global Waste Management, Recovery and Recycling industry. It provides all the tools to do the implementation individually or with a small team with minimal effort, minimal time and minimal cost to get a result that is certifiable and acceptable to competent authorities and business partners, whether suppliers or customers.

In most small and medium size companies, focus is on getting things done, hands-on to satisfy the customer, realizing profits and growing the business. Often less focus is given to the Business Management System also because these SME’s usually started out as micro - companies and have been growing fast over time. The QMS is offering an excellent business structure about how things should be done, how registration should take place, what the requirements are for your documentation and records, and how to realize continual improvement.

Adopting such a QMS in your company will streamline the management processes and will eventually pay back the time and effort you have put in it to get it started.

Nowadays many customers frequently audit their suppliers. When you have a valid ISO-9001 certification, such repetitive auditing will also be minimized by similar and different customers. At a later stage, it will be easier to implement an Environmental Management System (EMS) according to ISO 14000:2004 with the QMS as a basis, because it uses the same framework.

Likewise the implementation of OHSAS 18001, the standard for Occupational Health and Safety Assessment Series follows the same structure so that you and your company are also prepared for the implementation of this management system.

ISO 9001:2008 includes five primary sections that contain the most important clauses.

- Clause 4: Quality Management System
- Clause 5: Management responsibility
- Clause 6: Resource management
- Clause 7: Product realization
- Clause 8: Measurement analysis and improvement

The model of a process-based quality management system shown below illustrates the process linkages presented in clauses 4 to 8. This illustration shows that customers play a significant role in defining requirements as inputs. Monitoring of customer satisfaction requires the evaluation of information relating to customer perception as to whether the company has met the customer requirements. The model shown below covers all the requirements of the ISO standard, but does not show processes at a detailed level.

![Diagram of Continual Improvement of the Quality Management System]

The QMS promotes the improvement of the different processes by continually evolving control systems and optimizing all phases of production and services with a focus on customer requirements and satisfaction. The following figure demonstrates the organisational interrelationships between Core and Support processes, quality procedures, and functional position titles of the Quality Management System.

![Diagram of Continual Improvement]

ISO 9001:2008 is based on 8 management principles. These are described in ISO 9001:2008 and are regarded as key for the achievement of a company’s quality objectives. These key principles will be discussed later in this guide. A QMS refers to the activities you carry out within your company to satisfy the customer requirements and the customer’s expectations. To ensure that you have a QMS in place, customers may insist that your company demonstrate that your QMS conforms to the ISO 9001:2008 model.
Complying with the ISO 9001:2008 standard does not indicate that every material / product or service you deliver to your customer meets the customers’ requirements, only that the QMS use is capable of meeting them. Your company must continually assess how satisfied they are and demonstrate constant improvement measured against their feedback. And if you do not get any feedback, you are obliged to solicit for that feedback because that helps your company to move forward on the path of continual improvement. Evidence of your compliance with the ISO standard is first gathered by your own internal auditors.

This requires you to select, train, evaluate and prove and continually re-evaluate your internal auditors. At times a customer will check your compliance with the standard. You may choose to do second party auditing by your own suppliers.

When a registrar body sends, on your request, an auditor to confirm your compliance with the standard and this registrar finds that your company fulfils the requirements of ISO 9001:2008, your company becomes officially registered and the certificate that proves it will be issued by them. This certificate shows your customers, and other officials who require ISO 9001 compliance, that your company can meet these demands. Other recycling companies not concerned with becoming registered may nevertheless, want to comply with ISO 9001 because it is a continual improvement business model.

ISO 9001:2008 contains a large number of requirements and methods, but the numbers of principles are small. These principles form the base for your QMS. It makes sense to get familiar with these principles and communicate them with your employees.

**Principle 1: Customer focus**

Companies depend on their customers and therefore should understand current and future customer needs, and should meet customer requirements and strive to exceed customer expectations.

Key benefits are:

- Increased revenue and market share obtained through flexible and fast responses to market opportunities.
- Increased effectiveness in the use of the company’s resources to enhance customer satisfaction.
- Improved customer loyalty leading to repeat business.

Applying the principle of customer focus typically leads to:

- Researching and understanding customer needs and expectations.
- Ensuring that the objectives of the company are linked to customer needs and expectations.
- Communicating customer needs and expectations throughout the company.
- Measuring customer satisfaction and acting on the results.
- Systematically managing customer relationships.
- Ensuring a balanced approach between satisfying customers and other interested parties (such as owners, employees, suppliers, financiers, local communities and society as a whole).
Principle 2: Leadership

Leaders establish unity of purpose and direction of the company. They should create and maintain the internal environment in which people can become fully involved in achieving the company’s objectives.

Key benefits are:
- People will understand and be motivated towards the company’s goals and objectives.
- Activities are evaluated, aligned and implemented in a unified way.
- Miscommunication between levels of a company will be minimized.

Applying the principle of leadership typically leads to:
- Considering the needs of all interested parties including customers, owners, employees, suppliers, financiers, local communities and society as a whole.
- Establishing a clear vision of the company’s future.
- Setting challenging goals and targets.
- Creating and sustaining shared values, fairness and ethical role models at all levels of the company.
- Establishing trust and eliminating fear.
- Providing people with the required resources, training and freedom to act with responsibility and accountability.
- Inspiring, encouraging and recognizing people’s contributions.

Principle 3: Involvement of people

People at all levels are the essence of a company and their full involvement enables their abilities to be used for the company’s benefit.

Key benefits are:
- Motivated, committed and involved people within the company.
- Innovation and creativity in furthering the company’s objectives.
- People being accountable for their own performance.
- People eager to participate in and contribute to continual improvement.

Applying the principle of involvement of people typically leads to:
- People understanding the importance of their contribution and role in the company.
- People identifying constraints to their performance.
- People accepting ownership of problems and their responsibility for solving them.
- People evaluating their performance against their personal goals and objectives.
- People actively seeking opportunities to enhance their competence, knowledge and experience.
- People freely sharing knowledge and experience.
- People openly discussing problems and issues.

Principle 4: Process approach

A desired result is achieved more efficiently when activities and related resources are managed as a process.
Key benefits are:

- Lower costs and shorter cycle times through effective use of resources.
- Improved, consistent and predictable results.
- Focused and prioritized improvement opportunities.

Applying the principle of process approach typically leads to:

- Systematically defining the activities necessary to obtain a desired result.
- Establishing clear responsibility and accountability for managing key activities.
- Analysing and measuring of the capability of key activities.
- Identifying the interfaces of key activities within and between the functions of the company.
- Focusing on the factors such as resources, methods, and materials that will improve key activities of the company.
- Evaluating risks, consequences and impacts of activities on customers, suppliers and other interested parties.

**Principle 5: System approach to management**

Identifying, understanding and managing interrelated processes as a system contributes to the company’s effectiveness and efficiency in achieving its objectives.

Key benefits are:

- Integration and alignment of the processes that will best achieve the desired results.
- Ability to focus effort on the key processes.
- Providing confidence to interested parties as to the consistency, effectiveness and efficiency of the company.

Applying the principle of system approach to management typically leads to:

- Structuring a system to achieve the company's objectives in the most effective and efficient way.
- Understanding the interdependencies between the processes of the system.
- Structured approaches that harmonize and integrate processes.
- Providing a better understanding of the roles and responsibilities necessary for achieving common objectives and thereby reducing cross-functional barriers.
- Understanding company capabilities and establishing resource constraints prior to action.
- Targeting and defining how specific activities within a system should operate.
- Continually improving the system through measurement and evaluation.

**Principle 6: Continual improvement**

Continual improvement of the company's overall performance should be a permanent objective of the company.

Key benefits are:

- Performance advantage through improved company capabilities.
- Alignment of improvement activities at all levels to an company's strategic intent.
- Flexibility to react quickly to opportunities.
Applying the principle of continual improvement typically leads to:

- Employing a consistent company-wide approach to continual improvement of the company’s performance.
- Providing people with training in the methods and tools of continual improvement.
- Making continual improvement of material/products, processes and systems an objective for every individual in the company.
- Establishing goals to guide, and measures to track, continual improvement.
- Recognizing and acknowledging improvements.

**Principle 7: Factual approach to decision making**

Effective decisions are based on the analysis of data and information

Key benefits are:

- Informed decisions.
- An increased ability to demonstrate the effectiveness of past decisions through reference to factual records.
- Increased ability to review, challenge and change opinions and decisions.

Applying the principle of factual approach to decision making typically leads to:

- Ensuring that data and information are sufficiently accurate and reliable.
- Making data accessible to those who need it.
- Analysing data and information using valid methods.
- Making decisions and taking action based on factual analysis, balanced with experience and intuition.

**Principle 8: Mutually beneficial supplier relationships**

A company and its suppliers are interdependent and a mutually beneficial relationship enhances the ability of both to create value

Key benefits are:

- Increased ability to create value for both parties.
- Flexibility and speed of joint responses to changing market or customer needs and expectations.
- Optimization of costs and resources.

Applying the principles of mutually beneficial supplier relationships typically leads to:

- Establishing relationships that balance short-term gains with long-term considerations.
- Pooling of expertise and resources with partners.
- Identifying and selecting key suppliers.
- Clear and open communications.
- Sharing information and future plans.
- Establishing joint development and improvement activities.
- Inspiring, encouraging and recognizing improvements and achievements by suppliers.
What is needed and what is already available?

A QMS has a fundament of Policies, Procedures, Job instructions and registrations. Most recycling companies already have some procedures and job instructions that are usually easily made to fit the QMS. The pyramid below shows basically what is needed.

The Quality Manual is the core of the QMS. It should address each area of the ISO 9001:2008 standard with a basic statement claiming compliance and how the company maintains compliance. It often also contains the Company’s Quality Policy.

The Quality Policy is a statement from Management and describes the overall intentions and direction of a company related to quality as formally expressed by top management. The quality Policy must also address the quality objectives of the company. Usually this policy is part of the Quality Manual.

A Procedure is a documented practice, defining the who, what and when of activities. Procedures are typically used at department levels and may involve more than one department. See what is available in your company on procedures. Usually you find already procedures with regards to Document Control or other Quality Assurance activities.

A Job Instruction is a document that describes how the work is accomplished in your recycling company. Also job instructions from how to do things or how to operate equipment are an important part of the QMS. These instructions can be for example about how to check purchased scrap, how to assure that it is not radioactive, how to measure the weight and how to check the chemical content of the scrap. You will probably find that you already have job instructions for many of your key operations. Many of them will fit the QMS or can be easily made to fit.

Maybe these instructions are not yet written down. In that case the best way to get a work or job instruction is to interview the operator and write down exactly how he or she will check a container load of scrap or check the chemical content, in other words, how the job is accomplished. Keep such a description simple, use a standardized format and avoid any jargon. Such a written down reflection of the reality is the start point for collecting up-to-date work instructions.
Over time these documents can develop into a system of job instructions that cover all activities in a recycling operation.

**Records** must be maintained to show compliance of the QMS, for feedback into the QMS and for historical reasons. These records must be determined by the company to be necessary to ensure the effective planning, operation and control of the processes. Each company that is established for a while makes use of documents or systems on computers to register all kinds of processes and activities. This is what is meant by records.

The ISO standard requires **only six implemented documented procedures.**

**Procedure Control of documents**
Documents required by the QMS shall be controlled. Records are a special type of document and shall be controlled according to the procedure control of records. A documented procedure shall be established to define the controls needed:
- to approve documents for adequacy
- to review and update as necessary,
- to ensure that the current revision status of documents are identified,
- to ensure that relevant versions of documents are available at points of use,
- to ensure that documents remain legible and readily identifiable,
- to ensure that documents of external origin necessary for the quality management system are identified and their distribution controlled,
- to prevent the unintended use of obsolete documents
- to apply suitable identification to them if they are retained for any purpose.

**Procedure Control of records**
Records established to provide evidence of conformity to requirements and of the effective operation of the QMS shall be controlled. The company shall establish a documented procedure to define the controls needed for the identification, storage, protection, retrieval, retention and disposition of records. Records shall remain legible, readily identifiable and retrievable

**Procedure Internal audit**
The company shall conduct internal audits at planned intervals to determine whether the quality management system conforms to the planned arrangements to the requirements of ISO 9001:2008 and to the QMS requirements established by the company, and is effectively implemented and maintained.

An audit program shall be planned, taking into consideration the status and importance of the processes and areas to be audited, as well as the results of previous audits. The audit criteria, scope, frequency and methods shall be defined.

A documented procedure shall be established to define the responsibilities and requirements for planning and conducting audits, establishing records and reporting results. Records of the audits and their results shall be maintained.

The management responsible for the area being audited shall ensure that any necessary corrections and corrective actions are taken without undue delay to eliminate detected non-conformities and their causes.
Procedure Control of non-conforming material / product
The company shall ensure that material / product which does not conform to material / product requirements is identified and controlled to prevent its unintended use or delivery. A documented procedure shall be established to define the controls and related responsibilities and authorities for dealing with non-conforming material / product.
Where applicable, the company shall deal with non-conforming material / product by one or more of the following ways:

• by taking action to eliminate the detected non-conformity;
• by authorizing its use, release or acceptance under concession by a relevant authority and, where applicable, by the customer;
• by taking action to preclude its original intended use or application;
• by taking action appropriate to the effects, or potential effects, of the non-conformity when non-conforming material / product is detected after delivery or use has started.

When non-conforming material / product is corrected it shall be subject to re-verification to demonstrate conformity to the requirements.
Records of the nature of non-conformities and any subsequent actions taken, including concessions obtained, shall be maintained.

Procedure Corrective action
The company shall take action to eliminate the causes of non-conformities in order to prevent recurrence. Corrective actions shall be appropriate to the effects of the non-conformities encountered, and a documented procedure shall be established to define requirements for:

• reviewing non-conformities
• determining the causes of non-conformities,
• evaluating the need for action to ensure that non-conformities do not recur,
• determining and implementing action needed,
• records of the results of action taken
• reviewing the effectiveness of the corrective action taken.

Procedure Preventive action
The company shall determine action to eliminate the causes of potential non-conformities in order to prevent their occurrence. Preventive actions shall be appropriate to the effects of the potential problems. A documented procedure shall be established to define requirements for

• determining potential non-conformities and their causes,
• evaluating the need for action to prevent occurrence of non-conformities,
• determining and implementing action needed,
• records of results of action taken, and
• reviewing the effectiveness of the preventive action taken.
End-of-Waste quality criteria and its implications for the Recycling Industry

For the Recycling Industry legislation is changing. Governments require more assurances with regards to the quality of metals, materials and scrap that is transferred between countries.

EU End-of-Waste quality criteria

The EU End-of-Waste quality criteria are as follows:

The acceptance of input materials, all treatment steps and material / product quality checks (including any sampling and testing or visual inspections) according to the end-of-waste quality criteria must have been carried out under a fully implemented and externally verified quality management system.

The quality management system must at least include the following elements:

The quality management system must be auditable and ready for inspection by the competent authority under waste law to satisfy itself that the system is suitable for the purpose of demonstrating compliance with end-of-waste quality criteria.

It must include a set of documented procedures addressing each key process relevant to compliance with the technical end-of-waste criteria, including:

- acceptance of input materials
- monitoring of processes to ensure they are effective at all times
- monitoring material / product quality (including sampling and analysis) that are adjusted to the process and material / product specifics according to good practice
- procedures that ensure the effectiveness of the radiation monitoring and the ability of the radiation monitors to detect changes in radiation intensity (with respect to metals)
- actively soliciting feedback from customers in order to confirm compliance with material / product documentation
- record keeping of main quality control parameters
- measures for review and improvement of the quality management system
- training of staff
- management review

Specific requirements regarding monitoring material / product quality for iron, steel and aluminium scrap, including aluminium alloy scrap.

It must be assured that each consignment shall at least be:

- Monitored for radioactivity
- Inspected visually regarding all other material / product quality requirements

By means of representative sampling of consignments the monitoring shall also include:

- Testing of compliance with the limit value regarding the metal content or the metal yield.

The appropriate frequencies of sampling shall be established by consideration of the following factors:

- The expected pattern of variability (for example as shown by historical results);
- The inherent risk of variability in raw material input quality and any subsequent processing;
• The inherent precision of the monitoring method; and
• The proximity of actual results to the limit of compliance with the relevant end of waste condition.

The process of determining monitoring frequencies should be documented as part of the overall quality assurance scheme and as such should be available for auditing.

**Conclusion:**
Although the ISO QMS is a complete system, the End-of-Waste quality criteria is specifically asking for some documented procedures, while in the ISO QMS a job instruction was sufficient. Therefore new procedures are added to the QMS to satisfy these requirements. Based on these new regulations we can conclude that the QMS for EU recycling companies wishing to benefit from end-of-waste should include the following:

<table>
<thead>
<tr>
<th>Requirements from EU End-of-Waste quality criteria</th>
<th>Action to be taken by the Recycling Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possess detection equipment for radioactivity (metal recyclers)</td>
<td>Install and operate Detection Equipment per procedure</td>
</tr>
<tr>
<td>Documented Procedure Acceptance of Input Materials.</td>
<td>Update Job Instructions to Documented Procedure</td>
</tr>
<tr>
<td>Documented Procedure Monitoring of Processes, to ensure they are effective at all times.</td>
<td>Implement new Documented Procedure</td>
</tr>
<tr>
<td>Documented Procedure Monitoring Material / Product Quality</td>
<td>Implement new Documented Procedure</td>
</tr>
<tr>
<td>Documented Procedure Effectiveness of Radiation Monitoring</td>
<td>Update Job Instruction to Documented Procedure</td>
</tr>
<tr>
<td>Documented Procedure Soliciting feedback from Customers</td>
<td>Implement new Documented Procedure</td>
</tr>
<tr>
<td>Documented Procedure Record Keeping of Quality Control Parameters</td>
<td>Equal to Procedure Control of Records of ISO 9001:2008</td>
</tr>
<tr>
<td>Documented Procedure Training of Staff.</td>
<td>Update Job Instruction to Documented Procedure.</td>
</tr>
<tr>
<td>Documented Procedure measures to review the QMS.</td>
<td>Equal to ISO 9001 requirements, although ISO 9001 does not requires this in a Documented Procedure. Thus the existing instruction must be updated to Documented Procedure.</td>
</tr>
</tbody>
</table>
This means that a Waste Management, Recovery or Recycling Company that wants to comply according to ISO 9001:2008 and the EU requirements with regards to End-of-Waste, needs the following procedures:

1 - Procedure Control of Documents (ISO 9001:2008) 4.2.3
2 - Procedure Control of Records (ISO 9001:2008) 4.2.4
3 - Procedure Internal Audit (ISO 9001:2008) 8.2.2
4 - Procedure Control of Non-conforming Material / Product (ISO 9001:2008) 8.3
5 - Procedure Corrective Action (ISO 9001:2008) 8.5.2
6 - Procedure Preventive Action (ISO 9001:2008) 8.5.3
7 - Procedure Acceptance of Input Materials (End-of-Waste) 7.4.1
8 - Procedure Monitoring of Processes (End-of-Waste) 8.2.3
9 - Procedure Monitoring Material / Product Quality (End-of-Waste) 8.2.4
10 - Procedure Effectiveness of Radiation Monitoring (End-of-Waste) 7.6
11 - Procedure Soliciting feedback from Customers (End-of-Waste) 7.2.3
12 - Procedure Training of Staff (End-of-Waste) 6.2.2
13 - Procedure Management Review (End-of-Waste) 5.6

A Waste Management, Recovery or Recycling company that wants to comply according to ISO 9001:2008 and does not wish to comply with EU End-of-Waste Regulations needs only the procedures 1 to 6 listed above.
To determine the Quality Policy and the Objectives

To ensure that top management in your company takes a direct leadership role in defining, implementing and improving the QMS, with the goal of meeting all customer requirements and expectations, it is important that they take part in defining the Quality Policy. Therefore it must be ensured that there is a continuous commitment from the management. The intentions of the management are laid down in a policy statement as is required by the standard. The most effective way is to design the policy by a group of people from different levels and present the policy to top management for their commitment.

The Quality Policy should include the following:

- The company’s quality objectives
- Management commitment to meet the requirements and to continually improve the performance of the company
- Organizational goals
- Fulfilling customer needs and expectations
- Verifying that awareness and understanding are uniform among the company.

Make sure that the Quality Policy is understandable for everybody in the company. Make it ambitious, yet achievable.

Measurable quality objectives are set by top management to be used as a leadership tool that provides a focused direction that fits with the framework of the quality policy. The intention of setting objectives is to show and measure results from a continually improving company.

- Establish quality objectives and measures throughout the recycling company.
- Relate the quality objectives to performance, fitness for use, safety, reliability etc.
- Establish quality objectives at appropriate levels of management and provide sufficient resources to reach the objectives.
- Ensure that all objectives can be measured, address customer expectations and can be met in a defined period of time.
- Commit for continual improvement for material / product and services as well as for processes.

Quality Policy example

Company name

It is the policy of our Company to operate its business in a manner that consistently meets or exceeds the quality standards set by affected stakeholders – being customers, industry regulators and the communities within which our operations are conducted. We are committed to continuously improving the quality of our operations and the services we provide. Material / product / Service quality is a customer determination and as such we are dedicated to:

- identify and anticipate the changing needs and expectations of our customers;
- maintain processes and procedures which ensure that these changes are accommodated and in compliance with customers requirements and expectations
- provide material / product / services on time
- provide an employment environment where continual improvement is an objective
- train all staff and contractors to act in accordance with the requirements of this policy.

We support the adoption of the Quality Management System in order that all stakeholders benefit from this quality commitment.
Identify and define the key processes in your company.

What are key processes? Key processes are those processes that have maximum impact on the success of a company. Key processes deliver results that are directed towards specific and measurable business goals. Key processes are those that ensure that your company remains competitive. Key processes are the real value creating processes in the company that customers and shareholders are concerned with.

The purpose of identifying the key processes in your company in this context is to make sure that they are covered within the system of procedures and job instructions to assure optimal performance and continual improvement.

The identification of key processes in your company needs to be done through a brainstorming among the senior level executives of the company. This will ensure greater understanding of what processes and activities are important for fulfilling the company goals. The results are different for each company because of not only the different material / products, services or markets, but mainly because of the different objectives.

Steps to identify key processes in your company:

Step 1: Identify critical success factors to achieve the company’s objectives. These are performance drivers which have major contribution towards accomplishment of company’s objectives.

Step 2: Identify metrics for measuring the critical success factors – this amounts to establishing company key performance indicators (KPIs).

Step 3: Identify the processes that deliver the above drivers for performance or KPIs.

Step 4: Group or un-group related or un-related processes and give them names which convey the activity or operation that gets done. These are the key business processes of a company.

Within the recycling business typical key processes are;

- Purchasing of raw materials, scrap.
- Collection processes
- Determining the quality of scrap and raw materials
- Determining radiation at incoming inspection
- Processing raw materials, waste and scrap.
- Monitoring and Measuring Processes.
- Separation processes
- Sorting processes
- Baling processes
- Quality Control
- Financial and Cost Control, Hedging
- Sales, Customer Service.
- Customer complaint handling
Determine the gaps between what you have and what you need

This gap analysis provides you with the gaps between what is already in place and functioning well versus what is missing and has to be implemented in the QMS. It follows the numbering of the elements as mentioned in the ISO standard.

Going through this gap analysis form teaches you the weak points of your existing system and determines exactly where and how you can improve it. Do not skip any step in this analysis because it provides useful information about the completeness and correctness of your QMS.

<table>
<thead>
<tr>
<th>ISO 9001:2008 Requirements</th>
<th>Status/remarks</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4. Quality Management System</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4.1 General requirements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Are relevant processes and their application throughout the company determined for the QMS?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Has the sequence and interaction of these processes been determined?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Have the criteria and methods needed to ensure both the operation and control of these processes been determined?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Are the resources available and information needed to support the operation and monitoring of these processes ensured?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Are these processes monitored, measured and analyzed?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) Are actions needed to achieve planned results and continual improvement of these processes implemented?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4.2 Documentation requirements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2.1 General</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the QMS documentation include:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) A quality manual, a quality policy and quality objectives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Documented procedures and records?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Documents and records, determined by the company</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2.2 Quality manual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has a quality manual been issued, established and is it maintained?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the scope of the manual include details of and justification for any exclusion?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the manual include procedures for the QMS or references to them?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the manual contain a description of the interaction between the processes of the QMS?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2.3 Control of Documents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are all QMS documents controlled according to 4.2.4?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Determine the gaps between what you have and what you need

<table>
<thead>
<tr>
<th>Is a Documented Procedure established to define the controls needed to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- approve documents for adequacy prior to issue?</td>
</tr>
<tr>
<td>- review and update as needed and re-approve documents?</td>
</tr>
<tr>
<td>- ensure that changes and the current revision status of documents are identified?</td>
</tr>
<tr>
<td>- ensure that relevant versions of applicable documents are available at points of use?</td>
</tr>
<tr>
<td>- ensure that documents remain legible and readily identifiable.</td>
</tr>
<tr>
<td>- ensure that documents of external origin are identified and their distribution is controlled?</td>
</tr>
<tr>
<td>- prevent the unintended use of obsolete documents and to apply suitable identification to them if they are retained for any purpose?</td>
</tr>
</tbody>
</table>

4.2.4 Control of records

Are records legible, readily identifiable and retrievable?

Is a Documented Procedure established to define the controls needed for the identification, storage, protection, retrieval, retention time and disposition of records?

5. Management responsibility

5.1 Management commitment

Does top management provide evidence for their commitment to develop and implement a QMS and continually improve its effectiveness by:

- communicating to the company the importance of meeting customer as well as statutory and regulatory requirements?
- establishing the quality policy?
- ensuring that quality objectives are established?
- conducting management reviews?
- ensuring the availability of resources?

5.2 Customer focus

Has top management ensured that customer requirements are determined and are met with the aim of enhancing customer satisfaction?

5.3 Quality policy

Is the policy appropriate to the purpose of the company?

Does the policy include a commitment to comply with requirements and continually improve the effectiveness of the QMS?
### 5.4 Planning

#### 5.4.1 Quality objectives

- Are the quality objectives, incl. those needed to meet requirements for material / product, established at relevant functions and levels within the company?
- Are the quality objectives measurable and consistent with the quality policy?

#### 5.4.2 QMS planning

- Is the QMS planning carried out in order to meet the requirements given in 4.1, as well as the quality objectives?
- Is the integrity of the QMS maintained when changes to the QMS are planned and implemented?

### 5.5 Responsibility, authority and communication

#### 5.5.1 Responsibility and authority

- Are responsibilities and authorities defined and communicated within the company?

#### 5.5.2 Management representative

- Has top management appointed a member of the company’s management who, irrespective of other responsibilities, has the responsibility and authority that includes:
  - ensuring that processes needed for the QMS are established, implemented and maintained?
  - reporting to top management on the performance of the QMS and any need for improvement?
  - ensuring the promotion of awareness of customer requirements throughout the company?

#### 5.5.3 Internal communication

- Does top management ensure that appropriate communication processes are established within the company and that communication takes place regarding the effectiveness of the QMS?

### 5.6 Management review

#### 5.6.1 General

- Does top management review the QMS at planned intervals, to ensure its continuing suitability, adequacy and effectiveness?
Determine the gaps between what you have and what you need for changes to the QMS, including the quality policy and quality objectives?

Are the records from management reviews maintained?

### 5.6.2 Review input

Does the input to management reviews include:

- the results of audits?
- customer feedback?
- process performance and material / product conformity?
- status of preventive and corrective actions?
- follow-up actions from previous management reviews?
- changes that could affect the QMS?
- recommendations for improvement?

### 5.6.3 Review output

Does the output from the management review include:

- improvement of the effectiveness of the QMS and its processes?
- improvement of material / product related to customer requirements?
- resources needed?

### 6. Resource management

#### 6.1 Provision of resources

Has the company identified and provided the resources needed to implement and maintain the QMS and continually improve its effectiveness?

Has the company identified and provided the resources needed to enhance customer satisfaction by meeting customer requirements?

#### 6.2 Human resources

##### 6.2.1 General

Are personnel performing work affecting material / product conformity competent on the basis of appropriate education, training, skills and experience?
### 6.2.2 Competence, awareness and training

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are the necessary competences for personnel to perform work affecting material / product conformity determined?</td>
</tr>
<tr>
<td>Has training been provided or other actions taken to achieve needed competence?</td>
</tr>
<tr>
<td>Has the effectiveness of the actions taken been evaluated?</td>
</tr>
<tr>
<td>Are personnel aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives?</td>
</tr>
<tr>
<td>Are records of education, training, skills and experience maintained?</td>
</tr>
</tbody>
</table>

### 6.3 Infrastructure

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has the company identified, provided and maintained the infrastructure needed to achieve conformity to material / product requirements?</td>
</tr>
<tr>
<td>This includes, as applicable, buildings, workspace, utilities, process equipment and supporting services, such as transportation, communication or information systems.</td>
</tr>
</tbody>
</table>

### 6.4 Work environment

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has the company set out and managed the work environment to achieve conformity to material / product requirements?</td>
</tr>
</tbody>
</table>

### 7. Material / product realisation

[Note: work to develop, manufacture, and deliver the finished goods or services.]

#### 7.1 Planning of product realization

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has the company planned and developed the processes needed for product realization?</td>
</tr>
<tr>
<td>Is planning of product realization consistent with the requirements of the other processes of the QMS?</td>
</tr>
<tr>
<td>Has the company determined the following:</td>
</tr>
<tr>
<td>- quality objectives and requirements for the material / product?</td>
</tr>
<tr>
<td>- the need to establish processes, documents, and provide resources specific to the material / product?</td>
</tr>
<tr>
<td>- required verification, validation, monitoring, inspection and test activities specific to the material / product and the criteria for material / product acceptance?</td>
</tr>
<tr>
<td>- records needed to provide evidence that the realization processes and the resulting material / product meet requirements?</td>
</tr>
<tr>
<td>Is the output of this planning in a form suitable for the company’s method of operation?</td>
</tr>
</tbody>
</table>

#### 7.2 Customer-related processes

#### 7.2.1 Determination of requirements related to the material / product

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are the requirements specified by the customer, including the requirements for delivery and post-delivery activities identified?</td>
</tr>
</tbody>
</table>
Are the requirements not stated by the customer but needed for specified or intended use, where known identified?

Are the statutory and regulatory requirements applicable to the material / product known to the company?

Are any additional requirements considered necessary determined by the company?

### 7.2.2 Review of requirements related to the material / product

Is the company reviewing the requirements related to the material / product?

Is this review conducted prior to the company’s commitment to supply a material / product to the customer? (e.g. submission of tenders, acceptance of contracts or orders, acceptance of changes to contracts or orders)

Does the review ensure that:

- material / product requirements are defined?
- contract or order requirements differing from those previously expressed are resolved?
- the company has the ability to meet the defined requirements?

Are records of the results of the review and actions arising from the review maintained?

Where the customer provides no documented statement of requirement, are the customer requirements confirmed by the company before acceptance?

Where material / product requirements are changed, does the company ensure that relevant personnel are made aware of the changed requirements?

### 7.2.3 Customer communication

Has the company determined and implemented effective arrangements for communicating with customers in relationship to:

- material / product information?
- enquiries, contracts or order handling, including amendments?
- customer feedback, including customer complaints?

### 7.3 Design and development [Note: equates in part to scrap specifications and standards]

#### 7.3.1 Design and development planning

Does the company plan and control the design and development of material / product?

Does, during the design and development planning, the company determine the:

- design and development stages?
- review, verification and validation that are appropriate to each design and development stage?
Determine the gaps between what you have and what you need

- responsibilities and authorities for design and development

Does the company manage the interfaces between different groups involved in design and development to ensure effective communication and clear assignment of responsibility?

Is planning output updated, as appropriate, as the design and development progresses?

### 7.3.2 Design and development inputs

Are inputs relating to material / product requirements determined and records maintained?

Do these inputs include:

- functional and performance requirements?
- applicable statutory and regulatory requirements?
- where applicable, information derived from previous similar designs?
- other requirements essential for design and development?

Are these inputs reviewed for adequacy?

Are requirements complete, unambiguous and not in conflict with each other?

### 7.3.3 Design and development outputs

Are the outputs of design and development provided in a form that enables verification against the design and development input and approved prior to release?

Do design and development outputs:

- meet the input requirements for design and development?
- provide appropriate information for purchasing, production and for service provision?
- contain or reference material / product acceptance criteria?
- specify the characteristics of the material / product that are essential for its safe and proper use?

### 7.3.4 Design and development review

Are at suitable stages, systematic reviews of design and development performed in accordance with planned arrangements to:

- evaluate the ability of the results of design and development to meet requirements?
- identify any problems and propose needed actions?

Do participants in such reviews include representatives concerned with the design and development stages being reviewed?

Are records of the results of the reviews and any needed actions maintained?
### 7.3.5 Design and development verification

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is verification performed in accordance with planned arrangements to ensure that the design and development outputs met the design and development input requirements?</td>
<td></td>
</tr>
<tr>
<td>Are records of the results of the verification and any needed actions maintained?</td>
<td></td>
</tr>
</tbody>
</table>

### 7.3.6 Design and development validation

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is design and development validation performed in accordance with planned arrangements so that the resulting material / product is capable of meeting the requirements for the specified application or intended use, where known?</td>
<td></td>
</tr>
<tr>
<td>Wherever practicable, is validation completed prior to the delivery or implementation of the material / product?</td>
<td></td>
</tr>
<tr>
<td>Are the records of the results of the validation and necessary actions maintained?</td>
<td></td>
</tr>
</tbody>
</table>

### 7.3.7 Control of design and development changes

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are design and development changes identified and are records maintained?</td>
<td></td>
</tr>
<tr>
<td>Are the changes reviewed, verified and validated, as appropriate, and approved before implementation?</td>
<td></td>
</tr>
<tr>
<td>Is the review of design and development changes included in the effect of changes on constituent parts and material / product already delivered?</td>
<td></td>
</tr>
<tr>
<td>Are records of the results of the review of changes and any needed actions maintained?</td>
<td></td>
</tr>
</tbody>
</table>

### 7.4 Purchasing

#### 7.4.1 Purchasing process

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the company ensure that the purchased material / product conforms to specified purchase requirements?</td>
<td></td>
</tr>
<tr>
<td>Does the type and extent of control applied to the supplier and the purchased material / product depend upon the effect of the purchased material / product on subsequent product realization or the final material / product?</td>
<td></td>
</tr>
<tr>
<td>Does the company evaluate and select suppliers based on their ability to supply material / product in accordance with the company’s requirements?</td>
<td></td>
</tr>
<tr>
<td>Are criteria for the selection, evaluation and re-evaluation of suppliers established?</td>
<td></td>
</tr>
<tr>
<td>Are records of the results of evaluations and any needed actions arising from the evaluation maintained?</td>
<td></td>
</tr>
</tbody>
</table>

#### 7.4.2 Purchasing information

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does purchasing information describe the material / product purchased?</td>
<td></td>
</tr>
<tr>
<td>Where appropriate, does purchasing information include:</td>
<td></td>
</tr>
<tr>
<td>- requirements for approval of material / product, procedures, processes and equipment?</td>
<td></td>
</tr>
<tr>
<td>- requirements for qualification of personnel?</td>
<td></td>
</tr>
</tbody>
</table>
Determine the gaps between what you have and what you need.

### 7.5 Production and service provision

#### 7.5.1 Control of production and service provision

Does the company plan and carry out production and service provision under controlled conditions?

Does controlled conditions include, as applicable, the:

- availability of information that described the characteristics of the material / product?
- availability of work instructions, as necessary?
- use of suitable equipment?
- availability and use of monitoring and measuring devices?
- implementation of monitoring and measurement?
- implementation of release, delivery and post delivery activities?

#### 7.5.2 Validation of processes for production and service provision

Does the company validate any processes for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement?

Does validation demonstrate the ability of these processes to achieve planned results?

Has the company established arrangements for these processes including, as applicable:

- defined criteria for review and approval of the processes?
- approval of equipment and qualification of personnel?
- use of specific methods and procedures?
- requirements of records?
- revalidation?

Does the company ensure the adequacy of specified purchase requirements prior to their communication to the supplier?

Has the company established and implemented the inspection, or other activities, needed for ensuring that purchased material / product meets specified purchase requirements?

When the company or its customer intends to perform verification at the supplier’s premises, does the company state the intended verification arrangements and method of material / product release in the purchasing information?
### 7.5.3 Identification and traceability

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where appropriate, has the company identified the material / product by suitable means throughout product realization?</td>
<td></td>
</tr>
<tr>
<td>Does the company identify the material / product status with respect to monitoring and measurement requirements throughout product realization?</td>
<td></td>
</tr>
<tr>
<td>Where traceability is a requirement, does the company control and record the unique identification of the material / product and maintain the records?</td>
<td></td>
</tr>
</tbody>
</table>

### 7.5.4 Customer property

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the company exercise care with customer property while it is under the company’s control or being used by the company?</td>
<td></td>
</tr>
<tr>
<td>Does the company identify, verify, protect and safeguard customer property provided for use or incorporation into the material / product?</td>
<td></td>
</tr>
<tr>
<td>If any customer property is lost, damaged or otherwise found to be unsuitable for use, is this reported to the customer and are records maintained?</td>
<td></td>
</tr>
</tbody>
</table>

### 7.5.5 Preservation of material / product

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the company preserve the material / product during internal processing and delivery to the intended destination in order to maintain conformity to requirements?</td>
<td></td>
</tr>
<tr>
<td>Does this preservation include identification, handling, packaging, storage and protection?</td>
<td></td>
</tr>
<tr>
<td>Does preservation also apply to the constituent parts of a material / product?</td>
<td></td>
</tr>
</tbody>
</table>

### 7.6 Control of monitoring and measuring devices

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the company determine the monitoring and measurement to be undertaken and the monitoring and measuring devices needed to provide evidence of conformity of material / product to determine requirements?</td>
<td></td>
</tr>
<tr>
<td>Has the company established processes to ensure that monitoring and measurement can be carried out and are carried out in a manner that is consistent with the monitoring and measurement requirements?</td>
<td></td>
</tr>
<tr>
<td>Where necessary to ensure valid results, is measuring equipment:</td>
<td></td>
</tr>
<tr>
<td>- calibrated and/or verified at specified intervals, or prior to use, against measurement standards traceable to international or national standards?</td>
<td></td>
</tr>
<tr>
<td>- where no such standard exists, is the basis used for calibration or verification recorded?</td>
<td></td>
</tr>
<tr>
<td>- adjusted or re-adjusted as necessary?</td>
<td></td>
</tr>
<tr>
<td>- identified in order to determine the calibration status?</td>
<td></td>
</tr>
<tr>
<td>- safeguarded from adjustments that would invalidate the measurement results?</td>
<td></td>
</tr>
<tr>
<td>- protected from damage and deterioration during handling, maintenance and storage?</td>
<td></td>
</tr>
<tr>
<td>Does the company assess and record the validity of the previous measuring results when the equipment is found not to conform to requirements?</td>
<td></td>
</tr>
<tr>
<td>Does the company take appropriate action on the equipment and material / product affected?</td>
<td></td>
</tr>
</tbody>
</table>
Are records of the results of calibration and verification maintained?

When used in the monitoring and measurement of specified requirements, is the ability of computer software to satisfy the intended application confirmed. Is this undertaken prior to initial use and reconfirmed as needed?

### 8 Measurement, analysis and improvement

#### 8.1 General

Does the company plan and implement the monitoring, measurement, analysis and improvement processes needed to:

- demonstrate conformity of the material / product requirements?

- ensure conformity of the QMS?

- continually improve the effectiveness of the QMS?

Does this include determination of applicable methods, including statistical techniques, and the extent of their use?

#### 8.2 Monitoring and measurement

##### 8.2.1 Customer satisfaction

As one of the measurements of performance of the QMS, does the company monitor information relating to customer perception as to whether the company has met customer requirements?

Has the method for obtaining and using this information been determined?

##### 8.2.2 Internal audit

Are internal audits conducted at planned intervals?

Do internal audits determine whether the QMS:

- conforms to the planned arrangements to requirements of ISO 9001 and to the QMS requirements established by the company?

- is effectively implemented and maintained?

Is the audit program planned, taking into consideration the status and importance of the processes and areas to be audited, as well as the results of previous audits?

Are the audit criteria, scope, frequency and methods defined?

Does the selection of auditors and the conduct of audits ensure objectivity and impartiality of the audit process?

Do auditors audit their own work, or not?

Are the responsibilities and requirements for planning and conducting audits, and for reporting results and maintaining records defined in a Documented Procedure?

Is it ensured that actions are taken to reduce delay to eliminate detected non-conformities and their causes?

Are follow-up activities included in the verification of the actions taken and the reporting of verification results?
## 8.2.3 Monitoring and measurement process

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the company apply suitable methods for monitoring and where applicable, measurement of the QMS processes?</td>
<td></td>
</tr>
<tr>
<td>Are these methods demonstrating the ability of the processes to achieve planned results?</td>
<td></td>
</tr>
<tr>
<td>When planned results are not achieved, is correction and corrective action taken, as appropriate?</td>
<td></td>
</tr>
</tbody>
</table>

## 8.2.4 Monitoring and measurement of material / product

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the company monitor and measure the characteristics of the material / product to verify that material / product requirements have been met?</td>
<td></td>
</tr>
<tr>
<td>Is this carried out at appropriate stages of the product realization process in accordance with the planned arrangements?</td>
<td></td>
</tr>
<tr>
<td>Is evidence of conformity with the acceptance criteria maintained?</td>
<td></td>
</tr>
<tr>
<td>Do records indicate the person(s) authorizing material / product release to the customer?</td>
<td></td>
</tr>
<tr>
<td>Do material / product release and service delivery not proceed until the planned arrangements have been satisfactorily completed, unless otherwise approved by a relevant authority and, where applicable, by the customer?</td>
<td></td>
</tr>
</tbody>
</table>

## 8.3 Control of non-conforming material / product

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the company ensure that material / product which does not conform to material / product requirements is identified and controlled to prevent its unintended use or delivery?</td>
<td></td>
</tr>
<tr>
<td>Are the controls and related responsibilities and authorities for dealing with non-conforming material / product defined in a Documented Procedure?</td>
<td></td>
</tr>
<tr>
<td>Does the company deal with non-conforming material / product by one or more of the following ways:</td>
<td></td>
</tr>
<tr>
<td>- by taking action to eliminate the detected non-conformity?</td>
<td></td>
</tr>
<tr>
<td>- by authorizing its use, release or acceptance under concession by a relevant authority and, where applicable, by the customer?</td>
<td></td>
</tr>
<tr>
<td>- by taking action to preclude its original intended use of application?</td>
<td></td>
</tr>
<tr>
<td>- By taking action appropriate to the effect, or potential effects, of the non-conformity when non-conforming material / product is detected after delivery or use has started?</td>
<td></td>
</tr>
<tr>
<td>When non-conforming material / product is corrected, is it subject to re-verification to demonstrate conformity to the requirements?</td>
<td></td>
</tr>
<tr>
<td>Are records of the nature of non-conformities and any subsequent actions taken maintained?</td>
<td></td>
</tr>
</tbody>
</table>

## 8.4 Analysis of data

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has the company identified, collected and analyzed appropriate data to demonstrate the suitability and effectiveness of the QMS and evaluated where continual improvement of the effectiveness of the QMS can be made?</td>
<td></td>
</tr>
<tr>
<td>Does this include data generated as a result of monitoring and measurement and from other relevant sources?</td>
<td></td>
</tr>
</tbody>
</table>
Determine the gaps between what you have and what you need

<table>
<thead>
<tr>
<th>8.5 Improvement</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8.5.1 Continual improvement</strong></td>
<td></td>
</tr>
<tr>
<td>Does the company continually improve the effectiveness of the QMS through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive action and management review?</td>
<td></td>
</tr>
<tr>
<td><strong>8.5.2 Corrective action</strong></td>
<td></td>
</tr>
<tr>
<td>Has the company taken action to eliminate the cause of non-conformities in order to prevent recurrence?</td>
<td></td>
</tr>
<tr>
<td>Are corrective actions appropriate to the effects of the non-conformities encountered?</td>
<td></td>
</tr>
<tr>
<td>Is a Documented Procedure established to define requirements for:</td>
<td></td>
</tr>
<tr>
<td>- reviewing non-conformities, including customer complaints?</td>
<td></td>
</tr>
<tr>
<td>- determining the causes of non-conformities?</td>
<td></td>
</tr>
<tr>
<td>- evaluating the need for action to ensure that non-conformities do not recur?</td>
<td></td>
</tr>
<tr>
<td>- determining and implementing action needed?</td>
<td></td>
</tr>
<tr>
<td>- records of the results of action taken?</td>
<td></td>
</tr>
<tr>
<td>- reviewing the effectiveness of the corrective action taken?</td>
<td></td>
</tr>
<tr>
<td><strong>8.5.3 Preventive action</strong></td>
<td></td>
</tr>
<tr>
<td>Does the company determine action to eliminate the causes of potential non-conformities in order to prevent their occurrence?</td>
<td></td>
</tr>
<tr>
<td>Are preventive actions appropriate to the effects of the potential problems?</td>
<td></td>
</tr>
<tr>
<td>Is a Documented Procedure established to define requirements for:</td>
<td></td>
</tr>
<tr>
<td>- determining potential non-conformities and their causes?</td>
<td></td>
</tr>
<tr>
<td>- evaluating the need for action to prevent occurrence of non-conformities?</td>
<td></td>
</tr>
<tr>
<td>- determining and implementing action needed?</td>
<td></td>
</tr>
<tr>
<td>- records of results of actions taken?</td>
<td></td>
</tr>
<tr>
<td>- reviewing the effectiveness of the preventive action taken?</td>
<td></td>
</tr>
</tbody>
</table>
Writing the Quality Manual

Writing the Quality Manuals is usually a hard task. Therefore we have included in this guide an example of a dedicated Quality Manual for the Recycling Industry, that contains not only the ISO 9001:2008 but also the requirements with regards to the EU End-of-Waste. The term “The Company” can be replaced with your company name. The red text and blue should be adjusted to your own situation, or read as instructions.

Introduction to the QMS Manual

The Company developed and implemented a Quality Management System, hereafter QMS, in order to document the company’s best business practices, better satisfy the requirements and expectations of its customers and continually improve the overall management and performance of the company.

The QMS of The Company meets the requirements of the international standard ISO 9001:2008 with the additional EU End-of-Waste quality criteria. The manual is divided into eight sections that correlate to the QMS sections of ISO 9001:2008. Each section begins with a policy statement expressing The Company’s obligation to implement the basic requirements of the referenced QMS section. Each policy statement is followed by specific information pertaining to the procedures that describe the methods used to implement the necessary requirements.

This manual describes the QMS, delineates authorities, inter-relationships and responsibilities of the personnel responsible for performing within the system. The manual also provides procedures or references for all activities comprising the QMS to ensure compliance to the necessary requirements of the standard.

This manual is used internally to guide the company’s employees through the various requirements of the ISO standard and End-of-Waste quality criteria that must be met and maintained in order to ensure customer satisfaction, continual improvement and provide the necessary instructions that create an empowered work force.

This manual is used externally to introduce our QMS to our customers and other external companies or individuals. The manual is used to familiarize them with the controls that have been implemented and to assure them that the integrity of the QMS is maintained and focused on customer satisfaction and continual improvement.

Section 1: Scope

1.1 General

The quality manual outlines the policies, procedures and requirements of the QMS. The system is structured to comply with the conditions set forth in the International Standard ISO 9001:2008 and the EU requirements with regards to End-of-Waste quality criteria.

1.2 Application

The Company has determined that the following requirements are not applicable to the operations at this site and are documented as exclusions:

- Identify permissible exclusions. If none, document that there are no exclusions.
  Document the justification for any exclusions that are made.
Section 2: Normative Reference

2.0 Quality Management System References

The following documents were used as reference during the preparation of the Quality Management System:

- EU End-of-Waste quality criteria

Section 3: Definitions

3.0 Quality Management System Definitions

This section is for definitions unique to The Company.

- Customer owned property - Any type of instrumentation, accessories, manuals, or shipping containers that belong to a customer.
- Customer supplied material / product - Any type of service or material supplied to be utilized in the manufacture, modification or repair of customer-owned property.
- Material / product – The end item result of meeting all contract terms and conditions. (eg: manufactured goods, materials, merchandise, services etc.)
- Quality Records – Documentation of those activities wherein records of said activities must be maintained will be specified in the procedure or work instruction level documents, as applicable.
- Add, delete and revise definitions as appropriate to your QMS.

Section 4: General Requirement

4.1 General Requirements

The Company has established, documented and implemented a QMS in accordance with the requirements of ISO 9001:2008 and the EU End-of-Waste quality criteria. The system is maintained and continually improved through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive action and management review.

To design and implement the QMS The Company has:

- Identified the processes needed for the QMS and their application throughout the company and documented them on the Process Flow Diagram at the end of this section of the Quality Manual
- Determined the sequence and interaction of these processes, and illustrated them on the Process Flow Diagram
- Determined criteria and methods needed to ensure that the operation and control of the processes are effective, and documented them in job instructions
- Ensured the continuing availability of resources and information necessary to achieve planned results and continual improvement of these processes
- Established systems to monitor, measure and analyze these processes, and
- Established processes to identify and implement actions necessary to achieve planned results and continual improvement of these processes
- The Company manages these processes in accordance with the requirements of ISO 9001:2008 and the EU End-of-Waste quality criteria.
- Where The Company chooses to outsource any process that affects material / product conformity, The Company ensures control over such processes. Control of such processes is identified with the QMS.
4.2 Documentation Requirements

4.2.1 General

The QMS documentation includes:

- A documented Quality Policy and Quality Objectives
- This Quality Manual
- Documented Procedures
- Job instructions identified as needed for the effective planning, operation and control of our processes, and
- Quality Records

4.2.2 Quality Manual

This Quality Manual has been prepared to describe The Company’s QMS. The scope and permissible exclusions of the QMS are described in section one of this manual. Each section of the manual references documented QMS procedures relating to the requirements outlined in that section. The Process Flow Diagram at the end of section 4 provides a description of the interaction between the processes of the QMS system.

4.2.3 Control of Documents

All of the QMS documents are controlled according to the Procedure Control of Documents. This procedure defines the process for:

- Approving documents for adequacy prior to issue
- Reviewing and updating as necessary and re-approving documents
- Ensuring that changes and current revision status of documents are identified
- Ensuring that relevant versions of applicable documents are available at points of use
- Ensuring that documents remain legible and readily identifiable
- Ensuring that documents of external origin are identified and their distribution controlled, and
- Preventing the unintended use of obsolete documents and to apply suitable identification to them if they are retained for any purpose

4.2.4 Control of Quality Records

Quality records are maintained to provide evidence of conformity to requirements and of the effective operation of the QMS. The records are maintained according to the Procedure Control of Records. This procedure requires that quality records remain legible, readily identifiable and retrievable. The procedure defines the controls needed for identification, storage, protection, retrieval, retention time and disposition of quality records.

The required document procedure Record Keeping of Quality Control Parameters, as required by the EU End-of-Waste quality criteria is completely covered by the ISO 9001:2008 Procedure Control of Records.

Related Documents

- Procedure Control of Documents (4.2.3)
- Procedure Control of Records (4.2.4)
Insert your process flow diagram here:

See below an example.

Footnote:
(1) Quality check by visual inspection and or monitoring: see Annex 1
(2) Quality check by visual inspection and at intervals by sampling and analysis.
Section 5: Management Responsibility

5.1 Management commitment

Top Management has been actively involved in implementing the QMS. It has provided the vision and strategic direction for the growth of the QMS, and established quality objectives and the quality policy. *(Have minutes of implementation meetings or implementation plans been maintained to be able to show this involvement? As you implement your QMS, prepare to support this statement.)*

To continue to provide leadership and show commitment to the improvement of the QMS, management will do the following.

- Communicate the importance of meeting customer, statutory, and regulatory requirements.
- Establish quality objectives
- Establish the quality policy.
- Conduct management reviews.
- Ensure the availability of resources.

5.2 Customer focus

*The Company* strives to identify current and future customer needs, to meet customer requirements and exceed customer expectations.

Top Management ensures that customer requirements are understood and met, by requiring compliance with documented customer communication job instructions. Customer requirements are determined, converted into internal requirements, and communicated to the appropriate people in the company.

5.3 Quality policy

Top management ensures that the quality policy is communicated to all employees. It is included in new employee training and training on the QMS. It is posted in prominent places throughout the facility to maintain high standards within our company.

Management reviews the quality policy at each management review meeting to determine the policy’s continuing suitability for our company.

5.4 Planning

5.4.1 Quality objectives

Quality objectives are established to support our company’s efforts in achieving our quality policy and reviewed annually for suitability. Objectives have been established for the following: *(describe the levels at which objectives have been established. For example, quality objectives have been established for each division, department, and team. Make sure that objectives to meet material/product requirements are included).* Quality objectives are measurable, and reviewed against performance goals at each management review meeting.

*(State where quality objectives have been documented. This can be stated in the Quality Policy).*

5.4.2 Quality management system planning

The QMS has been planned and implemented to meet our quality objectives and the requirements of 4.1 of the ISO 9001 standard and relevant End-of-Waste quality criteria. Quality planning takes place as changes that affect the QMS are planned and implemented.
5.5 Responsibility, authority and communication

5.5.1 Responsibility and authority

An organizational chart has been established to show the inter-relation of personnel in the company. Job descriptions define the responsibilities and authorities of each of the positions on the organizational chart. Job descriptions and the organizational chart are reviewed and approved by top management for adequacy. These documents are available throughout the company to help employees understand responsibilities and authorities.

An organizational chart can be added below. See below an example.

5.5.2 Management representative

The (position title) has been appointed by top management as Management Representative. The Management Representative, has the following responsibility and authority to:

- ensure that processes needed for the QMS are established and implemented.
- report to top management on the performance of the QMS, and note needed improvements.
- promote awareness of customer requirements throughout the company.
- act as a liaison with external parties such as customers or auditors on matters relating to the QMS.

5.5.3 Internal communication

Processes are established for communication within the company. Methods of communicating the effectiveness of the QMS include department and management meetings, management review, circulation of minutes of management review meetings, Internal Audit closing meetings, and other routine business communication.
5.6 Management review
5.6.1 General
Top management reviews the QMS *periodically* at management review meetings. This review assesses the continuing QMS suitability, adequacy and effectiveness, identifying opportunities for improvement and needed changes. Records are maintained for each management review meeting.

**Management Review is laid down in a documented procedure according to the End-of-Waste quality criteria.**

5.6.2 Review input
Assessment of the QMS is based on a review of information inputs to management review. These inputs include the following:

- Results of audits
- Customer feedback
- Process performance and material / product conformity
- Company level quality data
- Status of preventive and corrective actions
- Follow-up actions from previous management reviews
- Planned changes that could affect the Quality Management System
- Recommendations for improvement

5.6.3 Review output
During these review meetings, management will identify appropriate actions to be taken regarding the following issues:

- Improvement of the effectiveness of the Quality Management System and its processes
- Improvement of material / product related to customer requirements
- Resource needs

Responsibilities for required actions are assigned to members of the management review team. Any decisions made during the meeting, assigned actions, and their due dates are recorded in the minutes of management review.

**Related Documents**

- Management Responsibility (5.5.1)
- Planning of Product realization Processes (5.3)
- Quality Policy and Quality Objectives (5.3) (5.4.1)
- Management Review meeting report (5.6.2)
- Organogram (5.5.1)
- Procedure Management review (5.6)

**Section 6: Resource Management**

5.1 Provision of resources

_The Company_ has implemented a QMS that complies with the ISO 9000: 2008 standard and the EU End-of-Waste quality criteria. This implementation was achieved with management commitment and with sufficient resources for the implementation. To effectively maintain and continually improve the system, management determines and provides necessary resources.
6.2 Human resources
6.2.1 General

To ensure competence of our personnel, job descriptions have been prepared identifying the qualifications required for each position that affects material / product quality. Qualifications include requirements for education, skills and experience. Appropriate qualifications, along with required training, provide the competence required for each position.

6.2.2 Competence, awareness and training

*The Company* has implemented a documented Procedure Training of Staff.

Qualifications are reviewed upon hire, when an employee changes positions or the requirements for a position change. *Human resources* maintain records of employee qualifications. If any differences between the employee’s qualifications and the requirements for the job are found, training or other action is taken to provide the employee with the necessary competence for the job. The results are then evaluated to determine if they were effective. Training and evaluation are conducted according to the Training Process Instruction.

All employees are trained on the relevance and importance of their activities and how they contribute to the achievement of the quality objectives.

6.3 Infrastructure

To meet quality objectives and material / product requirements *The Company* has determined the infrastructure needed. The infrastructure has been provided, and includes buildings, workspace, utilities, *process equipment* and supporting services. As new infrastructure requirements arise, they will be documented in quality plans. Existing infrastructure is maintained to ensure material / product conformity. Maintenance requirements are documented in:

- Preventive maintenance plans
- *Sanitation plans*
- *Building maintenance plans*

6.4 Work Environment

A work environment suitable for achieving material / product conformance is maintained. Requirements are determined during quality planning and documented in the quality plan. The work environment is managed for continuing suitability.

Data from the QMS is evaluated to determine if the work environment is sufficient for achieving material / product conformance, or if preventive or corrective action related to the work environment is required.

Related Documents

- Competence, Awareness and Training
- Training Process Instruction
- Infrastructure
- Procedure Training of Staff

Section 7: Product Realization

7.1 Planning of product realization

*The Company* has in place a documented Procedure Monitoring of Processes to effectively monitor all product realization processes.
Quality planning is required before new material / products or processes are implemented. The quality planning may take place as a design project, or according to the Planning of Product Realization. During this planning, management or assigned personnel identify:

- The quality objectives and requirements for the material / product,
- Processes, documentation and resources required
- Verification, validation, monitoring, inspection and test requirements, and
- Criteria for material / product acceptance

The output of quality planning includes documented quality plans, processes, and design outputs.

7.2 Customer-related processes
7.2.1 Determination of requirements related to the material / product

*The Company* determines customer requirements before acceptance of an order. Customer requirements include those:

- Requested by the customer
- Required for delivery and post-delivery activities
- Not stated by the customer but necessary for specified use or known and intended use
- Statutory and regulatory requirements applicable to the material / product
- Additional requirements determined by *The Company*

7.2.2 Review of requirements related to the material / product

*The Company* has a process in place for the review of requirements related to the material / product. The review is conducted before the order is accepted. The process ensures that:

- Material / product requirements are defined
- Contract or order requirements differing from those previously expressed are resolved
- *The Company* has the ability to meet the defined requirements
- Records are maintained showing the results of the review and any actions arising from the review
- Where a customer does not provide a documented statement of requirement, the customer requirements are confirmed before acceptance
- When material / product requirements are changed, *The Company* communicates changes to relevant personnel and amends relevant documents

7.2.3 Customer communication

*The Company* has implemented an instruction for communicating with customers in relation to:

- Material / product Information
- Enquiries, contracts and order handling, including amendments

*The Company* has implemented a documented Procedure for soliciting feedback from customers to adjust processes, improve quality and continually improve the company’s performance

7.3 Design and Development
7.3.1 Design and development planning

The design and development activities are outlined in a job instruction for controlling the design and development process. The R&D Department plans design and development according to this job instruction. The design plan includes:

- Design and development stages
- Required design reviews
• Verification and validation methods appropriate to each design and development stage
• Responsibilities and authorities for design and development
• Identification of the technical interfaces required for the project
• Updating of the design plan as the project progresses

7.3.2 Design and development inputs
Inputs relating to material / product requirements are determined and documented. All inputs are reviewed for adequacy and completeness, and to resolve any ambiguous inputs. Inputs include:

• Functional and performance requirements
• Applicable statutory and regulatory requirements
• Where applicable, information derived from previous similar designs
• Other requirements essential for design and development

7.3.3 Design and development outputs
Outputs of design and development are documented in a format that enables verification against the inputs, and are approved prior to release. Outputs are:

• Meet the input requirements
• Provide appropriate information for purchasing, production and for service provision
• Contain or reference material / product acceptance criteria
• Specify the characteristics of the material / product that are essential for its safe and proper use.

7.3.4 Design and development review
The design plan specifies suitable stages of the project to conduct design and development review. Reviews take place according to the job instruction; results of design review are recorded in minutes of the design review meetings which are maintained as a quality record. Design reviews:

• Evaluate the results of design and development activities and determine if they fulfill requirements
• Identify any problems and propose necessary actions
• Include representatives of functions concerned with the design and development stage being reviewed

7.3.5 Design and development verification
Design verification is planned and performed to ensure that the design and development outputs have satisfied the design and development input requirements. Records of the results of the verification and any necessary actions are maintained according to the procedure control of records.

7.3.6 Design and development validation
Design and development validation is performed according to the design plan to ensure that the resulting material / product is capable of fulfilling the requirements for the specified or known intended use or application. Validation is completed prior to delivery whenever practicable. Records of the validation activities are maintained according to the procedure control of records.

7.3.7 Control of design and development changes
The design and development procedure defines a process for identifying, recording, verifying,
validating and approving design changes. The review of design and development changes includes an evaluation of the effect of the changes on constituent parts and delivered material / product. Records are maintained to show the results of the review and any necessary actions identified during the review.

7.4 Purchasing
7.4.1 Purchasing process
A documented Procedure Acceptance of Input Materials is followed to ensure that purchased material / product conforms to the specified purchase requirements. The job instruction outlines the extent of control required for suppliers. Suppliers are evaluated and selected based on their ability to supply material / product in accordance with requirements as outlined in the procedure. Criteria for selection, evaluation and re-evaluation are documented in the job instruction. Records of the evaluation and any necessary actions are maintained as quality records according to the Procedure control of records.

7.4.2 Purchasing information
Purchasing information describes the material / product to be purchased, including where appropriate:

- Requirements for approval of material / product, processes and equipment
- Requirements for qualification of personnel
- Quality management system requirements

The purchasing documents are reviewed to ensure the adequacy of requirements before orders are placed with the supplier.

7.4.3 Verification of purchased material / product
The documented Procedure Acceptance of Input Materials describes the process used to verify that purchased material / product meets specified purchase requirements. If the customer will perform verification at the supplier’s premises, the verification arrangements and method of material / product release are documented in the purchasing information.

7.5 Production and Service Provision
7.5.1 Control of production and service provision
The Company plans and carries out production and service provision under controlled conditions according to documented Procedure Monitoring of Processes. Controlled conditions include, as applicable:

- The availability of information that describes the characteristics of the material / product
- The availability of job instructions
- The use of suitable equipment
- The availability and use of monitoring and measuring devices
- The implementation of monitoring and measurement
- The implementation of release, delivery and post-delivery activities

7.5.2 Validation of processes for production and service provision
The Company validates any processes for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement. This includes any processes where deficiencies become apparent only after the material / product is in use or the service has been delivered. Validation demonstrates the ability of these processes to achieve planned results.

The Company has documented the process for validation including:
• Defined criteria for review and approval of the processes
• Approval of equipment and qualification of personnel
• Use of specific methods
• Requirements for records
• Revalidation

7.5.3 Identification and traceability

*The Company* identifies the material / product throughout product realization. Material / product is identified with respect to monitoring and measurement requirements.

*The Company* controls and records the unique identification of the material / product where ever traceability is a specified requirement

7.5.4 Customer property

*The Company* exercises care with customer property while it is under the company’s control or being used. A job instruction outlines the Identification, verification, protection and safeguarding of customer property provided for use. If any customer property is lost, damaged or otherwise found to be unsuitable for use, this is reported to the customer and records maintained.

7.5.5 Preservation of material / product

*The Company* preserves the conformity of material / product during internal processing and delivery to the intended destination per job instruction. This preservation includes identification, handling, packaging, storage and protection. Preservation also applies to the constituent parts of a material / product.

7.6 Control of monitoring and measuring equipment

*The Company* has determined the monitoring and measurement to be undertaken and the monitoring and measuring equipment needed to provide evidence of conformity of material / product to determined requirements.

A documented instruction outlines the process used to ensure that monitoring and measurement to be carried out are carried out in a manner that is consistent with the monitoring and measurement requirements.

Where necessary to ensure valid results, measuring equipment is:

• Calibrated or verified at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards
• Adjusted or re-adjusted as necessary;
• Identified to enable the calibration status to be determined;
• Safeguarded from adjustments that would invalidate the measurement result;
• Protected from damage and deterioration during handling, maintenance and storage.

In addition, *Quality Control* assesses and records the validity of the previous measuring results when the equipment is found not to conform to requirements. *The Company* takes appropriate action on the equipment and any material / product affected. Records of the results of calibration and verification are maintained

When used in the monitoring and measurement of specified requirements, the ability of computer software to satisfy the intended application is confirmed. This shall be undertaken prior to initial use and reconfirmed as necessary.

If recycling metal in addition, *The Company* maintains a documented Procedure Effectiveness of Radiation Monitoring to ensure that the radiation detection equipment is functioning, calibrated and
maintained according to the set intervals and requirements advised by the manufacturer in absence of relevant UN-ECE or IAEA guidance. The results of test and calibration are controlled according to the Procedure Control of Records.

Related Documents

- Planning of Product Realization (7.1)
- Instruction Communication with Customers (7.2.3)
- Procedure Soliciting Feedback from Customers (7.2.3)
- Procedure Monitoring of Processes (7.1)
- Customer Related Processes (7.2)
- Design and Development (7.3)
- Purchasing (7.4)
- Procedure Acceptance of Input Materials (7.4.1)
- Control of Production and Service Provision (7.5)
- Identification and Traceability (7.5.3)
- Customer Property (7.5.4)
- Preservation of Material / product (7.5.5)
- Control of Monitoring and Measuring Equipment (7.6)
- Procedure Effectiveness of Radiation Monitoring (7.6)
- Procedure Control of Records (4.1) (7.6)

Section 8: Measurement, Analysis and Improvement

8.1 General

*The Company* plans and implements the monitoring, measurement, analysis and improvement processes as needed

- To demonstrate conformity of the material / product,
- To ensure conformity of the Quality Management System, and
- To continually improve the effectiveness of the Quality Management System.

These processes are identified in documented procedures and include determination of applicable methods, including statistical techniques, and the extent of their use.

8.2 Monitoring and Measurement

8.2.1 Customer Satisfaction

As one of the measurements of the performance of the Quality Management System, monitors information relating to customer perception as to whether the company has fulfilled customer requirements. The method for obtaining and using this information is identified in the Customer Related Processes and the Management Responsibility instructions.

8.2.2 Internal Audit

*The Company* conducts internal audits at planned intervals to determine whether the Quality Management System

- Conforms to the planned arrangements (see 7.1), to the requirements of this International Standard and to the QMS requirements established by the company
- Is effectively implemented and maintained.

An audit program has been designed and implemented and identifies an audit schedule based on the importance of the areas to be audited, as well as the results of previous audits. The audit criteria, scope, frequency, methods, responsibilities and requirements for planning and conducting audits, and
The required document Procedure Measures for Review of the QMS, as required by the EU End-of-Waste quality criteria is completely covered by the ISO 9001:2008 Procedure Internal Audit.

8.2.3 Monitoring and measurement of processes

The Company applies suitable methods for monitoring and, where applicable, measurement of the Quality Management System processes. These methods demonstrate the ability of the processes to achieve planned results. When planned results are not achieved, correction and corrective action is taken, as appropriate, to ensure conformity of the material / product. The process for identifying and carrying out the required monitoring and measuring of processes is documented in the Monitoring, Measuring and Analysis of Product Realization Processes and the documented Procedure Monitoring of Processes and the documented Procedure Monitoring Material / product Quality

8.2.4 Monitoring and measurement of material / product

The Company monitors and measures the characteristics of the material / product to verify that material / product requirements are fulfilled. This is carried out at appropriate stages of the product realization process identified by the Procedure Monitoring Material / product Quality

Evidence of conformity with the acceptance criteria is maintained. Records indicate the person authorizing release of material / product. Material / product release and service delivery does not proceed until all the planned arrangements have been satisfactorily completed, unless otherwise approved by a relevant authority, and where applicable by the customer.

8.3 Control of Non-conforming Material / product

The Company ensures that material / product which does not conform to material / product requirements is identified and controlled to prevent its unintended use or delivery. The controls and related responsibilities and authorities for dealing with non-conforming material / product are defined in the documented Procedure Control of Non-conforming Material / product.

8.4 Analysis of Data

The Company determines, collects and analyses appropriate data to demonstrate the suitability and effectiveness of the Quality Management System and to evaluate where continual improvement of the Quality Management System can be made. The process for determining, collecting and analyzing this data is defined in the documented Procedure Control of Data. Appropriate data includes data generated as a result of monitoring and measurement and from other relevant sources.

The analysis of data provides information relating to:

- Customer satisfaction
- Conformance to material / product requirements
- Characteristics and trends of processes and material / products including opportunities for preventive action
- Suppliers
8.5 Improvement

8.5.1 Continual improvement

*The Company* continually improves the effectiveness of the QMS through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review.

8.5.2 Corrective action

*The Company* takes action to eliminate the cause of non-conformities in order to prevent recurrence. Corrective actions are appropriate to the effects of the non-conformities encountered.

A documented *Procedure Corrective Action* defines requirements for:

- Reviewing non-conformities (including customer complaints),
- Determining the causes of non-conformities,
- Evaluating the need for action to ensure that non-conformities do not recur,
- Determining and implementing action needed,
- Records of the results of action taken (see 4.2.4), and
- Reviewing corrective action taken.

8.5.3 Preventive action

*The Company* determines action to eliminate the causes of potential non-conformities in order to prevent their occurrence. Preventive actions are appropriate to the effects of the potential problems.

A documented *Procedure Preventive Action* defines requirements for:

- Determining potential non-conformities and their causes
- Evaluating the need for action to prevent occurrence of non-conformities
- Determining and implementing action needed
- Records of results of action taken
- Reviewing preventive action taken

Related Documents

- Management Responsibility (8.2.1)
- Customer Related Processes (8.2.1)
- Procedure Internal Audit (8.2.2)
- Monitoring of Processes (8.2.4)
- Procedure Monitoring Material / Product Quality (8.2.4)
- Procedure Control of Non-conforming Material / Product (8.3)
- Procedure Control of Data (8.4)
- Procedure Corrective Action (8.5.2)
- Procedure Preventive Action (8.5.3)
Modify existing Procedures and Job Instructions and write new ones

Procedures are the documents defining who, what, when and where policies are carried out. Normally procedures are written by the process owners. They describe the activities that accomplish the output of the identified process and their relationship to the company's operations as a whole. In your company, implementing the QMS, you will more than likely, participate in the preparation of the procedures and/or job instructions.

To obtain a suitable set of procedures, it makes sense to identify in the first place the current procedures that exist in your company. Be aware that many times documents are called procedures, but are just job instructions or other documents.

Form a team of people around each process that has to be documented in a procedure and discuss the applicable clauses from ISO 9001:2008 and/or the EU End-of-Waste quality criteria. The most logical step is to document the process under investigation in a flowchart. By doing this and having the experts around the table, critical questions may be asked in order to improve or simplify the process. If it can be improved, the responsible people should implement the changes and document it in the procedure and flowchart.

After agreeing on the time table for the implementation of the new or revised procedure, the procedure can be written in its final form. Nowadays the written procedures are often replaced by flowcharts, because they visualize far better the actions, decision moments and the responsibilities for a process.

In the example procedures in this implementation guide, we have provided the flowcharts. The following information must be added to be complete:

- Description:
- Number of the Procedure:

Prepared by: Date of first issue: Issued by:

Revision number: Date of revision: Approved by:

After the completion of the procedure there should be a phase to test the procedure against the process. If needed the procedure must be redrawn or rewritten. This should lead to the final procedure that reflects the process.

Work or job instructions are documentation that describes how work is accomplished and are usually written by the operators and documentation facilitators. You will most likely find that you already have job instructions for many of your operations.

Use the following list of points when you are documenting work from yourself or others.

- Start from existing written job instructions
- Use a team approach in preparing instructions
- Verify that existing instructions describe the present activity. If not, correct them
- Determine whether present practices are satisfactory or if a quality improvement process should be followed
- Adopt improved practice if necessary
- Complete flowcharting or process map of complex operations
- Start upgrading and evaluating the job instructions
- Verify that the job instructions are being followed as the job is being completed
- Use job instructions as a basis for training.
Document the process:

- Keep it short and simple, do not over-document
- Flowchart the process
- Make extensive use of charts and tables
- Use a standardized format so that everybody recognizes it as a procedure or job instruction
- Keep the audience in mind
- Don’t use jargon
- Use perfect grammar
- Make the meaning clear
- Write the tasks, do not describe an individual’s way of working
- Test the procedure by reading it to someone else

To assure that the procedure or job instruction is the latest issue, these documents are usually marked with a revision number (paper versions) as pre-described by the Procedure Control of Documents. Check always that you have the latest revision.

Nowadays most companies use computer monitors or digital displays where the procedures and job instructions can be displayed. This guarantees that the latest or current version is always available.
Preparing the Required Quality Procedures

4.2.3 Procedure Control of Documents (as required by ISO 9001:2008)

The following documents were used as reference during the preparation of the Quality Management System:

Description: Number of the Procedure:
Prepared by: Date of first issue: Issued by:
Revision number: Date of revision: Approved by:

Purpose:
The purpose of this procedure is to establish a process for the review, distribution, and implementation of documents that describe and control the QMS.

Scope:
This procedure applies to all elements of ISO 9001:2008, the Quality Management System.

Responsibility:
The execution and maintenance of the procedure is the responsibility of the Management Representative.

References:
ISO 9001:2008

Footnote:
(1) Minimum 1 year retention of statement of conformity for EU End-of-Waste
4.2.4 Procedure Control of Records (as required by ISO 9001:2008)

Description: Number of the Procedure: 
Prepared by: Date of first issue: 
Revision number: Date of revision: 
Issued by: Approved by: 

This Procedure covers fully the requirements of the Procedure Record Keeping of Quality Control Parameters as required by the EU End-of-Waste quality criteria.

Purpose: This procedure outlines the requirements and responsibilities for handling, identifying, collecting, filing and retaining quality records.

Scope: This procedure applies to all records generated by and for the Quality Management System and the responsibilities involved.

Responsibility: The execution and maintenance of the procedure is the responsibility of the Management Representative.

References:
ISO 9001:2008
Defined records

Footnote:
(1) Minimum 1 year retention of statement of conformity for EU End-of-Waste
8.2.2 Procedure Internal Audit (as required by ISO 9001:2008)

Description: Number of the Procedure:
Prepared by: Date of first issue: Issued by:
Revision number: Date of revision: Approved by:

This Procedure covers fully the requirements of the Procedure Measures for Review of the QMS as required by the EU End-of-Waste quality criteria.

Purpose:
The purpose of this procedure is to define the quality audit practices at the company.

Scope:
The purpose of auditing is to:
ensure conformance with the company's policies, systems and procedures, assess the effectiveness of the quality activities, evaluate the effectiveness of the QMS implementation, promote understanding among management, staff and employees, and communicate information to the company's management.
In order to achieve maximum improvement, the audit must: be planned; establish facts; be based on objective evidence; be executed competently; and be reported constructively.

Responsibility:
The execution and maintenance of the procedure is the responsibility of the Audit team and the Management Representative.

References:
ISO 9001:2008
Audit reports
8.3 Procedure Control of Non-conforming Material / product (as required by ISO 9001:2008)

Description: Number of the Procedure:
Prepared by: Date of first issue: Issued by:
Revision number: Date of revision: Approved by:

Purpose:
To establish a procedure for the control and disposition of non-conforming material / products and materials, to prevent unintentional use or shipment.

Scope:
This procedure applies to all non-conforming material / products and materials detected within the Recycling Company, whether obtained from vendors, produced in-house, or in company stock.

Responsibility:
The execution and maintenance of the procedure is the responsibility of the production management and the Management Representative.

References:
ISO 9001:2008 Procedure control of records
Procedure monitoring processes
Procedure monitoring material / product quality
8.5.2 Procedure Corrective Action (as required by ISO 9001:2008)

Description: Number of the Procedure:
Prepared by: Date of first issue: Issued by:
Revision number: Date of revision: Approved by:

Purpose:
This procedure sets out the requirements for taking corrective action.

Scope:
This procedure is concerned with corrective action identified inside the internal QMS audit process, customer complaints, internal complaints and other reporting.

Responsibility:
The execution and maintenance of the procedure is the responsibility of the production management and the Management Representative.

References:
ISO 9001:2008
Procedure monitoring processes
Procedure monitoring material / product quality
8.5.3 Procedure Preventive Action (as required by ISO 9001:2008)

Description:
Prepared by:
Revision number:

Purpose:
This procedure sets out the requirements for taking preventive action.

Scope:
This procedure is concerned with preventive action identified inside the internal QMS audit process, customer complaints, internal complaints and other reporting.

Responsibility:
The execution and maintenance of the procedure is the responsibility of the production management and the Management Representative.

References:
ISO 9001:2008
Procedure monitoring processes
Procedure monitoring material / product quality
7.4.1 Procedure Acceptance of Input Materials (as required by EU End-of-Waste quality criteria)

Description: Number of the Procedure: 
Prepared by: Date of first issue: 
Revision number: Date of revision:

Issued by: 
Approved by:

Purpose: 
This procedure sets out the requirements for acceptance of raw materials.

Scope: 
This procedure is concerned with the requirements for accepting supplied goods and raw materials, owned by the company or third parties, to be checked on conformance against standards and quality requirements.

Responsibility: 
The execution and maintenance of the procedure is the responsibility of the production management and the Management Representative.

References:
ISO 9001:2008
Procedure effectiveness of radiation monitoring
Procedure monitoring of processes
Procedure control of records

(1) metal specific and for other materials where there is a risk of radioactive contamination.
8.2.3 Procedure Monitoring of Processes (as required by EU End-of-Waste quality criteria)

Description: Number of the Procedure:
Prepared by: Date of first issue: Issued by:
Revision number: Date of revision: Approved by:

Purpose:
This procedure sets out the requirements to monitor the production processes in order to avoid non-conforming material / product

Scope:
To determine the monitoring, measurement, analysis and improvement of production processes that are needed to: demonstrate conformity of the material / product, ensure conformity of the Quality Management System and continually improve the effectiveness of the Quality Management System.

Responsibility:
The execution and maintenance of the procedure is the responsibility of the production management and the Management Representative.

References:
ISO 9001:2008
Procedure internal audit
Procedure monitoring of material / product quality
Procedure control of records
8.2.4 Procedure Monitoring of Material / product Quality (as required by EU End-of-Waste quality criteria)

Description: Number of the Procedure: 
Prepared by: Date of first issue: 
Revision number: Date of revision: 
Purpose: 
This procedure sets out the requirements to monitor the material / product quality during the different stages of the production process.
Scope: 
To determine the monitoring, measurement, analysis and improvement processes and methods that are needed to: demonstrate conformity of the material / product, ensure conformity of the Quality Management System and continually improve the effectiveness of the Quality Management System.
Responsibility: 
The execution and maintenance of the procedure is the responsibility of the production management and the Management Representative.

References:
ISO 9001:2008
Procedure internal audit
Procedure monitoring of processes
(1) metal specific and for other materials where there is a risk of radioactive contamination.
7.6 Procedure Effectiveness of Radiation Monitoring (as required by EU End-of-Waste quality criteria)

Description: Number of the Procedure:
Prepared by: Date of first issue: Issued by:
Revision number: Date of revision: Approved by:

Purpose:
To provide instructions for the detecting and monitoring of radioactive material supplied to the recycling company.

Scope:
This procedure provides the proper method for monitoring radiation and contamination levels of radioactive material shipments loaded in vehicles and containers and offered for inspection.

Responsibility:
The execution and maintenance of the procedure is the responsibility of the production management and the Management Representative.

References:
ISO 9001:2008
Procedure monitoring processes
Procedure monitoring of material / product quality
Procedure control of records
7.2.3 Procedure Soliciting Feedback from Customers (as required by EU End-of-Waste quality criteria)

Description: Number of the Procedure: 
Prepared by: Date of first issue: Issued by: 
Revision number: Date of revision: Approved by: 

Purpose:
To continually improve, the Company will monitor the effectiveness of the customer service, the material / product quality and the overall performance.

Scope:
By soliciting feedback from customers, information is gathered allowing for possibilities for improvement of performance. Together with information of internal audits, customer complaints and management reviews this information will be used to continually improve the Company's performance.

Responsibility:
The execution and maintenance of the procedure is the responsibility of the sales management and the Management Representative.

References:
ISO 9001:2008
Procedure control of non-conforming material / product
Procedure monitoring of material / product quality
Procedure preventive action
Procedure corrective action
6.2.2 Procedure Training of Staff (as required by EU End-of-Waste quality criteria)

Description: Number of the Procedure:
Prepared by: Date of first issue: Issued by:
Revision number: Date of revision: Approved by:

Purpose:
This procedure provides guidelines for training within the Company. The application of the specified steps will ensure that all employees receive training to fulfill their tasks correctly. The procedure will assist managers in the identification, planning, prioritization, implementation, recording and evaluation of training.

Scope:
This procedure applies to all departmental managers and employees within the Company.

Responsibility:
The execution and maintenance of the procedure is the responsibility of the Human Resources Management and the Management Representative.

References:
ISO 9001:2008
Training records
Procedure control of records
5.6 Procedure Management Review (as required by EU End-of-Waste quality criteria)

Description: Number of the Procedure:
Prepared by: Date of first issue: Issued by:
Revision number: Date of revision: Approved by:

Purpose:
The purpose of this procedure is to enable management to review the Recycling Company’s Quality Management System and performance at planned intervals.

Scope:
To improve the effectiveness of the QMS and identify opportunities for continual improvement.

Responsibility:
The Management Representative is responsible for planning, organising the Management Reviews and collecting the input.

References:
ISO 9001:2008
Internal Audit reports
Customer complaints
Continual improvement is an ongoing effort to improve material/products, services or processes. These efforts can seek “incremental” improvement over time or “breakthrough” improvement all at once. Among the most widely used tools for continuous improvement is a four-step quality model, the plan-do-check-act (PDCA) cycle, also known as Deming Cycle or Shewhart Cycle:

**Plan:** Identify an opportunity and plan for change.

**Do:** Implement the change on a small scale.

**Check:** Use data to analyze the results of the change and determine whether it made a difference.

**Act:** If the change was successful, implement it on a wider scale and continuously assess your results. If the change did not work, begin the cycle again.

Other widely used methods of continuous improvement, such as Six Sigma, Lean, and Total Quality Management, emphasize employee involvement and teamwork; measuring and systematizing processes; and reducing variation, defects and cycle times.

**Continuous or Continual?**

The terms continuous improvement and continual improvement are frequently used interchangeably. But some quality practitioners make the following distinction:

**Continual improvement:** a broader term preferred by W. Edwards Deming to refer to general processes of improvement and encompassing “discontinuous” improvements, that is, many different approaches, covering different areas.

**Continuous improvement:** a subset of continual improvement, with a more specific focus on linear, incremental improvement within an existing process. Some practitioners also associate continuous improvement more closely with techniques of statistical process control.
Typical drivers for continual improvement are the internal audit reports, customers complaints and the results of the management review. But it is important to listen also to improvements that are suggested by the operators. They are the experts in their processes and know usually very well what is failing, why and what can be improved. Unfortunately many companies do not recognize this and let valuable knowledge go unused.

Why Continual Improvement?

To make certain that there is an active plan for continual QMS improvements, and that causes of non-conforming material / product are investigated, specifically to eliminate these non-conformance. Also attempts should be made to detect and eliminate potential causes of non-conforming material / product before they occur. These actions contribute to the continually improvement of the system. Continual Improvement is a constant search for ways to improve the functioning of the QMS by investigation and elimination of causes of non-conforming material / product, at any point in the process, distribution and storing. Also, it is the procedure in use to prevent occurrence of non-conforming material / product in the first place.
The Implementation of the QMS

Before implementing the QMS, make sure that the company is ready for it, that there is top management commitment and clear communication about the objectives. The ten most common mistakes made when implementing a QMS are:

1. Undertaking the process for the wrong reason. Occasionally business owners have visions of grandeur derived from potentially displaying the certificate or attending the awards ceremony rather than focusing on the long term benefits to their business.

2. Total senior management commitment to the process of implementing and maintaining is missing

3. Dedicating insufficient resource to the process

4. Failing to accept the change is an on-going process not a project with an end date

5. Setting unrealistic target dates and objectives

6. Failing to implement the QMS throughout the company, instead believing it is only applicable to the operational functions such as processing. A QMS is influencing the whole company.

7. Failing to train staff adequately in how to implement change

8. Documenting the QMS before it has been properly designed. Design the organization first and document after.

9. Believing the implementation is to document procedures rather than to generate improved results on a continual base.

10. Implementing the QMS before robust checks and updates, if required, have been carried out.

Make sure that you purchase an original document of the ISO 9001:2008 standard from your national standards office or from www.iso.org; and if your company is within EU jurisdiction, that you have a relevant copy of the European Regulation regarding End-of-Waste quality criteria for the material you intend to be classified as a product.

The QMS Implementation Planner consists of the Planning Calendar below and the dedicated flow chart. The Planning Calendar below identifies a typical sequence of steps that Recycling Companies should take when implementing a Quality Management System according to ISO 9001:2008 and the relevant European Regulation regarding End-of-Waste quality criteria. It provides an illustration indicating a number of important steps, but is not an exhaustive list of activities necessary to develop an effective Quality Management System.

Since this Implementation Planner is a guide line, it is very important to follow the implementation very closely. React immediately to unexpected situations and unexpected reactions of personnel. If personnel do not understand certain measures, take the time to explain it and get them involved. Make sure that every step is completed.
### The QMS Implementation Planner

<table>
<thead>
<tr>
<th>Step</th>
<th>QMS Implementation Planner</th>
<th>Status/Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preparation stage</strong></td>
<td>• Become familiar with the QMS requirements and provide training as needed within the company.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Understand the End-of-Waste quality criteria.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Communicate the goals and objectives through all layers in the company.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Identify the requirements that your material / product or service is to meet as established by your company, customers, suppliers and statutory and regulatory requirements.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Demonstrate understanding of the new approach</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Ensure top management involvement and full support</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Form implementation teams of capable people from various levels.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Develop your project plan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Get information about potential certification bodies</td>
<td></td>
</tr>
<tr>
<td><strong>Step 1</strong></td>
<td>• Identify define and understand the key processes for the QMS.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Measure, monitor, analyze and determine the effectiveness and efficiency of the processes.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Use flow charts to visualize the key processes.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Top Management to determine the Quality Policy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Top management to launch the project</td>
<td></td>
</tr>
</tbody>
</table>
### Step 2
Define the system based on the results from step 1
Say what you do and how you do it.

- Flow charts
- Value stream maps
- Existing procedures
- Job Instructions
- Check what is already available in your company
- Determine the gaps between what you have and what you need
- Select internal auditors and train them
- Modify existing procedures and Job Instructions
- Write new procedures and Job Instructions

### Step 3
Define the support and Management Processes
Say what you do and how you do it.

- Identify and define the support processes
- Identify and define the management processes
- Identify the sequence and interaction of support and management processes
- Define input and output for each key process, including contact with customers
- Plan internal auditing and execution
- Use flow charts to study existing processes
- Continue implementation plan
- Keep people involved and informed

### Step 4
Adequately define and communicate the QMS
Do what you say.

- Confirm that the QMS is focused on performance of the system
- Confirm that the QMS is focused on compliance
- Confirm that the QMS is focused on customer needs and expectations
- Standardize communication of information
- Identify over existence of documentation
- Keep it simple
- Capture simplified processes in concise documentation and flow charts
- Ensure that the implementation of the QMS meets requirements of your customers, ISO 9001:2008 and the End-of-Waste quality criteria.
- Management Review
### Step 5

**Carry out internal and third party audits.**

*Prove it.*

- Provide for internal auditing of all processes, with a focus on performance, while checking for compliance and continual improvement.
- Establish a standard process for planning, executing and reporting the results of all audits.
- Go for third party registration of the QMS. *Ensure that the third party is able to evaluate the End-of-Waste quality criteria.*

### Follow-up Stage

**Continually improve.**

- Demonstrate assurance, organizational efficiency, effectiveness and continual improvement from the QMS.
- Continually enhance top management support and commitment to provide the needed resources such as competent people and a capable infrastructure.
- Evaluate changes resulting from continual improvement efforts.
- Repeat comprehensive analysis of all activities periodically to continue improvement in output quality and productivity.
- Identify requirements that your material / product or services are to meet, as established by your Recycling Company, Customers, and statutory and regulatory requirements.
- Monitor and measure, as appropriate, the processes to ensure that they are under control.
- Keep people involved and informed.

Please find on the next page the flow diagram that supports the QMS implementation planner.
Flow Chart for the QMS Implementation Planner

1. Start
2. Identify your Customers
   - Are you meeting customer needs and expectations?
     - Yes: Perform Gap Analysis and improve process
     - No: Perform Gap Analysis and begin documentation
3. Are your processes well documented?
   - Yes: Rework into your Standard Format
   - No: Perform Gap Analysis and begin documentation
4. Need outside help?
   - Yes: Use Consultant
   - No: Follow your procedures and documentation
5. Conduct Registration Audit
   - Pass?
     - Yes: Perform Corrective action
     - No: Conduct Surveillance Audits
6. Conduct Surveillance Audits
   - Pass?
     - Yes: Perform Corrective action
     - No: Continue to follow and improve

The easy implementation of an ISO compliant Quality Management System for the recycling industry
References

ISO 9001:2008 ISO International Organization for Standardization - Requirements
ISO 19011:2002 ISO International Organization for Standardization – Guidelines for Quality and/or environmental management systems auditing
Guide to Quality Control, Kaoru Ishikawa, Asian Productivity Organisation, Tokyo 1982

UN-ECE Recommendations on Monitoring and Response Procedures for Radioactive Scrap Metal agreed at the UNECE Group of Experts Meeting (Geneva, 12-14 June 2006) [http://www.unece.org/trans/radiation/docs/recommendations_e.pdf]

Council of the European Union’s Regulation (EU) No 333/2011 establishing criteria when ferrous and aluminium scrap metal cease to be waste
Annex - 1 - Part 1

Monitoring for presence of unwanted radioactive contamination

LOOK OUT FOR RADIOACTIVE SOURCES

NATURALLY OCCURRING RADIOACTIVE MATERIALS & SMALL SOURCES

IMPORTANT

IF YOU SEE A LABEL OR DEVICE SIMILAR TO THOSE ILLUSTRATED, OR YOU SEE SUSPECTED OR ACTUAL PRESENCE OF RADIOACTIVE MATERIAL IN SCRAP METAL, METAL PRODUCTS OR WASTES: CALL

Company to add internal contact details of manager who may contact the appropriate regulatory body and/or competent authority in emergencies
Annex - 1 - Part 2

Monitoring for presence of unwanted radioactive contamination

Gate Monitoring

The truck enters the radiation monitor

The truck can exit or enter

The truck must pass through again. If the alarm went off the first time, the truck must pass through two more times without activating the alarm before it can leave

No

RADIOACTIVE ALARM

SPEED ALARM

NO

The truck confirmed

RADIATION ACCEPTANCE REPORT

START

If necessary scan the truck again

INFORM COMPETENT AUTHORITY ON EMERGENCIIES

INFORM SUPPLIER

Segregate radioactive item(s)
Store item(s) in a suitable container
Secure the container

Cordon off the 1 µSv/h zone
Forbid access
Call specialized company

INFORM REGULATORY BODY FOR RADIATION SAFETY
Annex - 1 - Part 3

Monitoring for presence of unwanted radioactive contamination

RADIATION RISK REDUCTION

**TIME:** Limit your time near a source of radiation since this will reduce the amount of radiation exposure.

**DISTANCE:** Keep your distance from radioactive materials. The intensity of radiation and its effects drop off sharply with distance from the source, so always maximize your distance.

**SHIELDING:** Shielding reduces radiation exposure. Shielding materials, like cement blocks, lead, steel, and other metals, will block the radiation produced by radioactive materials. Properly-trained personnel use shielding to reduce the amount of radiation to which they are exposed.

**BASIC ADVICE**

*Isolate* the suspicious car, van, truck, container(s) or equipment. If considered necessary, stop further processing and dispatching of any metal products or wastes.

*Identify* people who may have been exposed to radiation. Record their contact details.

*Inform* the managing director /operator of the incident, they may seek the assistance of an on-site radiation safety person or external qualified experts.

*Learn* about basic radiological protection; if the company has a gate monitor or portable detector, ask how it works.

**DON’T**

*DON’T* touch or pick up packages or containers with a radio activity symbol and stay as far away from them as possible.

*DON’T* open or destroy any suspicious container under any circumstances. Opening a container may be dangerous for you, your fellow workers and the public. Note that heavy metal containers or shielding blocks may be constructed of depleted uranium rather than of lead.

*DON’T* touch suspect or actual radioactive material with your bare hands.

Recyclers do not want radioactive contamination entering their metal scrap but face such a threat because governments either lost control, or never had control, over radioactive material designated in national law or by a regulatory body as being subject to regulatory control. By identifying such unwanted radioactivity, recyclers protect human health and the environment and help restore government control, thereby preventing further dispersion of, or contamination by, such radioactive material.

This advice from the Bureau of International Recycling (also online at www.bir.org) takes into account IAEA and UN-ECE guidance publications (available online at www.iaea.org and www.unece.org).
Annex - 2

Example certificate of shipment monitoring

<table>
<thead>
<tr>
<th>MONITORING STATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of monitoring station</td>
</tr>
<tr>
<td>Name of organization/company and person conducting the monitoring</td>
</tr>
<tr>
<td>Address</td>
</tr>
<tr>
<td>Telephone</td>
</tr>
<tr>
<td>Fax</td>
</tr>
<tr>
<td>E-mail</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETAILS OF LOAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country of origin</td>
</tr>
<tr>
<td>Origin of load - supplier of merchandise (address, contact person and telephone)</td>
</tr>
<tr>
<td>Destination of load (contact details of recipient)</td>
</tr>
<tr>
<td>Identification of load (reference to transit documents being carried with the load)</td>
</tr>
<tr>
<td>Means of transport (identity truck, ship, container, etc.)</td>
</tr>
<tr>
<td>Details of carrier (contact details)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MEASUREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details of the monitoring equipment used</td>
</tr>
<tr>
<td>Average values measured at 1 metre from the surface of the load (µSv/h)</td>
</tr>
<tr>
<td>Maximum dose rate value in contact with the outer surface of the container, truck or wagon, in µSv/h (identify position)</td>
</tr>
<tr>
<td>Background radiation value in the area, in µSv/h</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CERTIFICATION STATEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>(by person responsible for monitoring) Certifying that the above values are a true record of the measurements made at the date of monitoring stated below.</td>
</tr>
<tr>
<td>Official stamp of monitoring organization/company</td>
</tr>
<tr>
<td>Date of monitoring of shipment</td>
</tr>
</tbody>
</table>

N.B. No certification document should be provided for a load showing radiation levels significantly in excess of natural radiation background in the local area.

Extract from Annex I to the UN-ECE Recommendations on Monitoring and Response Procedures for Radioactive Scrap Metal. 2006
### Annex - 3

**Example of EU Statement of Conformity with the end-of-waste criteria**

At date of printing this example is current for iron, steel and aluminium scrap, including aluminium alloy scrap that ceases to be waste, for other end-of-waste material types, check against the relevant EU Regulation.

**Statement of Conformity with the end-of-waste criteria referred to in Article 5(1)**

1. **Producer/importer of scrap metal:**
   Name:
   Address:
   Contact person:
   Tel.:
   Fax:
   E-mail:

2. a) **name or code of the scrap metal:** category, in accordance with an industry specification or standard:

   b) where relevant, main technical provisions of a customer specification, such as composition, size, type and properties:

3. **The scrap metal consignment complies with the specification or standard referred to in point 2:**

4. **Quantity of the consignment in tonnes:**

5. **A radioactivity test certificate has been established in accordance with national or international rules on monitoring and response procedures for radioactive scrap metal:**

6. **The producer of scrap metal applies a quality management system complying with Article 6 of Regulation (EU) No 333/2011**, which has been verified by an accredited verifier or, where scrap metal which has ceased to be waste is imported into the customs territory of the Union, by an independent verifier:

7. **The scrap metal consignment meets the criteria referred to in points (a) to (c) of Articles 3 and 4 of Regulation (EU) No 333/2011:**

8. **Declaration of the producer/importer of scrap metal:** I certify that the above information is complete and correct to my best knowledge.

   Name:                                                                 Date:
   Signature:                                                             

---

The Bureau of International Recycling (BIR) was created in 1948 as the international trade federation representing the world’s recycling industries. BIR members’ interests cover in particular ferrous and non-ferrous metals, paper and textiles, represented by the four commodity divisions. BIR committees deal with amongst other topics: stainless steel and special alloys; plastics; and tyres which are also studied and traded by some BIR members. About 800 companies and national federations from over 70 countries are affiliated to BIR. BIR’s primary goals are to promote materials recycling and recyclability, thereby conserving natural resources, protecting the environment, and facilitating free trade of recyclables in an environmentally sound manner.