

QA-CER certification of the quality management system for recycling and production companies.



Quality Assurance of Content and Eco-data of Recycled materials in Polymeric Products

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Specific requirements of the recyclate management system

Foreword

The QA-CER certification scheme was developed by the accredited certification body BQA in cooperation with the accredited laboratories Centexbel and Flanders' PlasticVision (Flemish Plastics Centre). The certification scheme is targeted at the certification of industrial companies that produce polymer recyclates and/or use them in extrusion processes.

The QA-CER certification scheme applies to:

- Sorting and recycling companies dealing with post-industrial and post-consumer waste plastic, textiles or composites
- Plastic and textile processors and composite producers that use post-industrial and post-consumer waste
- Assembly companies that make fabricated products with recyclates of plastic components or textiles.

A QA-CER certificate is granted to a company for all or some of its activities.

Version	Date	Modifications
Version 1	Januar 2013	First version
Version 2	August 2017	<ul style="list-style-type: none">• Revision conform the ISO 9001:2015 (mainly numbering of clauses)• Introduction of new logo conform with BQA marketing stile
Version 3	June 2021	Restructuring levels into systems

Situating quality control and care for the environment within the sectors that use recycled materials

Within plastic processing and textiles production, the full or partial use of recycled materials in extrusion processes is becoming increasingly significant. Economic and/or ecological considerations by production companies are leading to a clear increase in such usage. Likewise, important customers (including the automotive sector) and governments (in the context of sustainable purchasing) can further accelerate this process by making specific demands with respect to the presence of a significant percentage share of recyclate material in the final product.

The increased demand for recycled products has of course had a direct influence on availability and pricing. To respond to the rising demand, recycling companies no longer only have to process pre-consumer / production waste but also post-consumer waste flows. The rising prices of recyclates can naturally also stimulate untrustworthy companies to apply unacceptable practices.

Of course the desired quality of the end products using recyclates must continue to be guaranteed. To remain within the product specifications, a combination of new polymers and recyclates is usually used. The desired quality is clearly specific to the product, sector and application, which means that a single definition of “quality” cannot be set for all companies and markets.

The desired quality of the end products could of course be ensured by 100% in-house quality control, but this method is not practically feasible, affordable or reliable enough for third parties.

Setting up (a) a comprehensive traceability system for the entire value chain and (b) a system of certification for a suitable Quality Assurance system for the different links in the total value chain is a viable alternative to the above approach.

These new instruments can offer the customers sufficient assurance at an economical and socially justifiable price.

In detailing the requirements, the main principles of the quality management system ISO 9001 was taken as a basis, supplemented by requirements stated in European recycling standards (including characteristics of polymer waste flows as listed in EN 15347 and a traceability system for polymer waste flows as defined in EN 15343).

Periodic certification of the systems applied within companies (traceability and quality management system) by an independent party should ensure transparency and confidence for the different parties involved (recycling companies, production companies, customers, governments etc.).

At present only “environmental requirements” are imposed by customers concerning the percentage share of recycled materials in the products. The possible presence of polluting additives or contaminants in recycled products or the products made with them is not yet subjected to scrutiny. The use of post-consumer waste flows also means that the presence of such substances can never be entirely ruled out. Recyclates must be seen as items not subject to obligatory REACH registration.

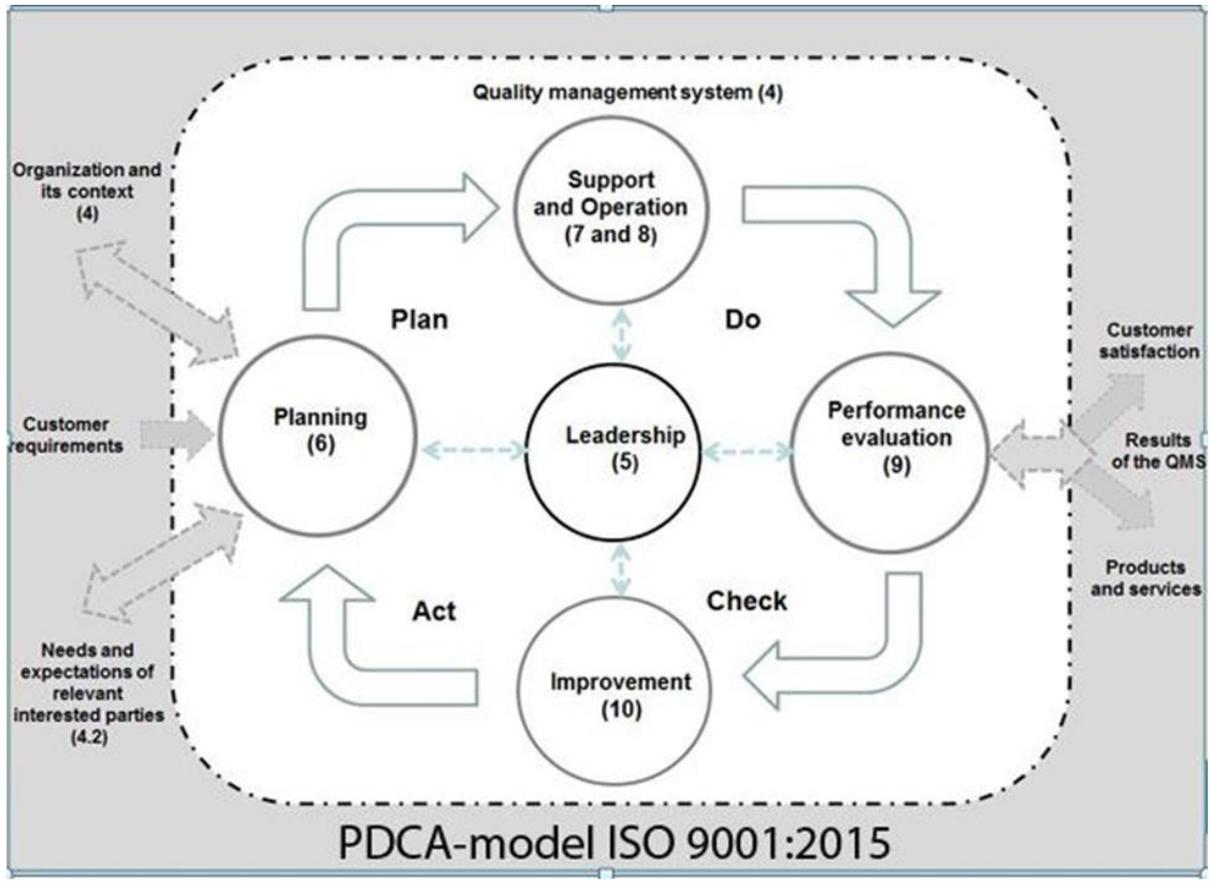
The possible presence of “dangerous substances” (heavy metals, brominated flame retardants, carcinogenic pigments etc.) in recycled products can only be detected by systematic chemical analyses.

Flows free of such substances can of course be characterised as such. Thanks to the traceability system and its targeted use in production, the flows of such recyclates and end products in separated recycling processes can ensure the “detoxification” of the recycling chain.

The QA-CER certification system is composed of three systems, as defined below.

QA-CER certificate scheme 1

The management aspect of the recycle flows and applications is the basic requirement for this certificate. Chemical characterisation of the materials is not a necessity.



Note 1: in defining the requirements imposed below, reference is made to the conditions of ISO 9001:2015 specifically made for the recycle management system: this does not imply, however, that a QA-CER certificate holder also needs to use an ISO 9001 quality system.

Note 2: for organisations that already have an ISO 9001:2015 certificate, the table below referring to the diagram above shows which clauses of the ISO 9001:2015 need to be made more specific.

Leadership (5)	Planning (6)	Support (7)	Operation (8)
Policy	Objectives Actions	HR Infrastructure Monitoring resources Documentation	Product realisation

Recyclate management system

(§ 3 Definitions)

Recyclate is defined as

- A raw material resulting from a recycling process (as defined in CEN TR 15353: recycling = processing in a production process of [plastic] waste materials for the original purpose or for other purposes, but excluding energy recovery) where the chemical structure of the raw material is not significantly altered or
- A waste flow used as a raw material.

(§ 4.4 Quality management system and its processes)

The organisation shall determine the criteria and methods (including monitoring, measures and associated performance indicators) needed to ensure that both the operation and management of these processes are effective, specifically for activities linked to recyclates.

Questions:

Are there specific “criteria” for the purchase – processing – control – sale - of recyclates or raw materials, semi-fabricates or end products fully or partly incorporating recyclates?

Are there specific “processes” related to the reception, storage, any pre-treatment (purifying, compounding etc.) and processing of recyclates, and how are these managed?

Are there processes needed for the recyclate management system that are outsourced, and how are they managed?

(§ 7.5 Documented information)

The organisation shall establish records to provide proof that recyclate flows are followed up. Records relating to end products containing recyclate shall be managed.

Questions:

What records are kept within the internal recycling process?

What records are kept for the processing of internal recyclate?

What records are kept for the processing of external recyclate?

What records relate to the conversion of waste flows into raw materials?

Do the records include the customer’s traceability requirements?

The organisation shall establish the way in which the required records are stored and destroyed.

Leadership and planning

(§5.2 Quality policy)

(§ 6.2 Quality objectives and planning to achieve them)

The top management shall provide proof that the recycle management system is included in the quality policy, that the quality policy is communicated within the organization and that the associated quality objectives have been established for the relevant job descriptions and levels within the organisation.

Questions:

Has the quality policy been translated into the use of recycle in end products?

Has the quality policy, as it relates to recycling, been translated into purchasing, sales, product development, production, quality control etc.?

Are there quantifiable targets for the use of recycle?

Are these targets periodically discussed and evaluated?

Support

(§ 7.3 Awareness)

The organisation shall ensure that its employees are aware of the importance of their activities and how they contribute to reaching the targets related to the recycle management system.

Questions:

What specific communication towards the employees is made concerning the recycling process and the use of recycle?

Are there specific training courses provided relating to the evaluation, rejection or release and use of recycle and products made on the basis of recycle?

(§ 7.1.3 Infrastructure)

The organisation shall provide the infrastructure needed to reach the targets relating to the recycle management system.

Questions:

What specific provisions have been made for receiving, identifying, storing, inspecting, possibly pre-treating and processing recycle?

What are the possibilities of the IT systems to follow the recycle streams ?

(§ 7.1.5. Monitoring and measuring resources)

The organisation shall determine the monitoring and measurement to be undertaken and the monitoring and measuring equipment needed to provide evidence of conformity of the product to determined requirements.

Questions:

Are there specific tests for recycle (entry control) - products based on recycles (final control)?

How are controls undertaken?

In what way are the measurement instruments verified?

Operation

(§8.1 Operation planning and control)

The organisation shall plan the processes needed for product realisation: determination of requirements for the product, validation and test activities and records of them.

Questions:

How do you provide proof of the use of the applied quantity (content) of recyclate and of the conformity of the end product in which the recyclate is incorporated?

(§8.2.1 Customer communication)

The organisation shall determine and implement effective arrangements for communicating with customers in relation to the use/processing of recyclate.

Questions:

Have you communicated with the customer over the use of recyclate and what are the specific agreements (product information sheets, packaging, website etc.)?

(§8.2.2 Determination of requirements related to the product)

The organisation shall determine the requirements specified by the customer or requirements not specified by the customer but necessary for specified or intended use.

Questions:

Are there specific demands from the customer for recycling or recycled content?

Do these demands always apply or is it possible to deviate from them depending on the availability of recyclate?

Is the quality level of the recyclate used constant? Can this be demonstrated on the basis of records?

Does the final product comply with the regulations for Reach and RoHS (limitation of dangerous substances: lead, mercury, cadmium, chrome VI, polybrominated biphenyl, polybrominated diphenyl ether)? What documents can be presented to support this?

Are the product characteristics conform to the applicable customer or market requirements?

(§8.3. Design and development)

The organisation shall manage the design and development of the product with respect to the recyclate management system.

Questions:

Is the use of recyclate specifically included in the design?

Is the quality level of the recyclate very important to achieving the quality of the end product? If so, how can this quality level be guaranteed?

How do you deal with the requirements relating to the use of recyclate material?

Do you distinguish between internal and external recyclate?

How are changes in design and development managed?

Are there specific test runs for the products based on recyclate?

Are the new products based on recyclate released positively?

Does product information exist with product specifications of products in which recyclates are incorporated? Is the recyclate content indicated in this product information?

(§8.4.2 Control of externally provided processes)

The organisation shall ensure that the specifications for goods purchased include the information needed with respect to the recyclate content, and ensure that the goods purchased meet the specified purchasing requirements associated with the goods.

Questions:

Are there specifications for recyclate? Are these controlled and guaranteed by the supplier?

Are there different types of recyclate in relation to the product and how are they requested?

What is the procedure for requesting and releasing a new recyclate?

Is the origin of the recyclate purchased known or traceable?

Are the recyclates purchased clearly identified as recyclate?

(§8.4.3. Control of externally provided processes)

Verification of the specifications of goods purchased must be carried out. Records of the results of the verification shall be kept along with any measures needed.

Questions:

Is there an (administrative/visual/auditing) control upon entry and registration for the recyclates or products in which recyclate is incorporated?

Are test reports or product certificates supplied along with the various supplies of recyclate?

Are released raw materials indicated as such?

What happens to non-conforming recyclates?

(§8.5.1. Management of production and services)

The organisation shall plan and carry out production under controlled conditions for all the sub-processes in which recyclate is processed.

Questions:

How is processing managed?

Are there specific controls for products based on recyclate?

Are there clear production instructions for the processing of recyclates?

When using recyclates, do you use the same process parameters as those applied when you work without incorporating any recyclate?

How is the quality of the end product incorporating recyclates controlled and guaranteed?

How do you ensure the desired recyclate content during production?

Are there specific procedures for dealing with recyclate and the uncertainties associated with it?

What are the most important process parameters that must be controlled when processing recyclates?

How do you determine the process parameters and tolerances for these parameters that are applied when processing recyclates?

Do the end products have the same (internal) specifications as identical end products made with virgin granulate?

(§8.5.2. Identification and traceability)

The organisation shall identify the use of recyclate by suitable means throughout product realisation.

Questions:

Are the recyclates to be used clearly identified?

Is there a specific coding of recyclate and the quantities present in the end product?

Is there a clear traceability system with respect to the use of recyclates?

What data is traceable and what is its relevance?

Measurement, analysis and improvement

(§8.7. Management of nonconforming outputs)

The organization shall ensure that a product which does not conform to product requirements relating to the use of recyclate is identified to prevent its unintended delivery. Records of the nature of nonconformities and any subsequent actions taken, including deviations and concessions obtained, shall be maintained.

Questions:

How are “nonconforming recyclates” managed?

What if there is no recyclate left?

Are there alternatives for recyclate and how are these systems set up and guaranteed?

QA-CER certificate system 2

(§11.1. Management of product controls)

System 2 includes all the requirements of system 1 and applies to companies that want to guarantee the technical specifications of their products, both in terms of the recyclate and the end product.

The organisation shall clearly describe the products that come under the certificate. A description can be made using clearly defined product families.

Extra requirements for system 2:

- Product control by an externally accredited organisation
- Control frequency: at least once a year
- Sampling by BQA
- Control labs: accredited lab or approved by BQA. If the company has its own lab, it can carry out tests itself under the supervision of the BQA auditors.

QA-CER certificate system 3

(§11.2. Management of ECO parameters)

System 3 includes all the requirements of system 2 with extra auditing at system level of the ECO parameters of the product or recycle.

Extra requirements for system 3:

- The organisation must demonstrate that it follows up all the environmental legislation parameters, for example that it has built in sufficient control systems to ensure that no products are present that feature on the REACH or RoHS list.
- Administrative control by BQA to establish whether the documented process and laboratory tests are managed with ECO parameters.