Information Sheet No. 3-2
Quality Systems

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What is quality assurance?

Quality Assurance (QA) is process focused, the focus is on doing the right things in the right way to deliver a manageable and reliable result. *Quality Control* (QC) is product quality oriented, it involves testing to confirm that the resulting products comply with quality specifications.

For recycled organics facilities we need both. Some companies develop and implement *ISO 9001 Quality Management Systems* (QMS), providing for the systematic production of multiple product lines. Some companies focus on manufacturing to a defined product standard.

Both QA and QC are required to manufacture product of consistent quality. An individual product batch analysis is of no value without a sampling procedure and sample handling procedure that ensures the sample is representative of the entire batch. In the absence of QA procedures, what is the relevance of an product batch analysis for the previous batch?

The most common question asked of the ROU by compost manufacturers is "*how do I know when my compost is ready for use?*"

Some processors specify a set number of weeks of processing, but in the absence of monitoring and management procedures to maintain adequate moisture in the compost pile (as one example), time is useless even as a rough indictor.

The fundamental requirements for management of the critical control points in the manufacturing process are the same regardless of the labels we put on them. These fundamentals will stand alone, and will also underpin a QMS, or product certification scheme in the instance a company decides this is required.

A 9001 QMS builds layers of systematic robustness, or organisational sustainability. The complexity of the QMS language and requirements can be confusing and can provide an obstacle to getting started. However, QMS certification can cover numerous product lines, including proprietary products.

Independent verifiers or certifiers of product certification systems (eg. for compliance with a product standard) follow the "System 5 product certification" approach defined in HB 18.28 (2005), which can be described as a simplified QMS, and applies only to the products that comply with the relevant product standard.

In both instances, the emphasis is both on compliance with stated product characteristics AND procedures that deliver this outcome on a reliable basis.

Types of quality assurance systems

Customers have a number of options to reduce the risk of purchasing a non-conforming or low quality product.

Customers can request indicators of product quality by referring to a published industry or Australian Standard. There are four Australian Standards for products containing recycled organics, and these are listed below. Guides to these standards are provided in Information Sheet Nos. 3-7 to 3-10.

- AS 4454 (2012). Composts, soil conditioners and mulches;
- AS 3743 (2003). Potting mixes;
- AS 4419 (2003). Soils for landscaping and garden use; and
- AS/NZS 4422 (1996). Playground surfacing – specifications, requirements and test method.
- Note there are many other standards and quality assurance schemes that specify requirements for farm inputs for different purposes such as *Freshcare* and HACCP systems; organic produce standards (NASAA, BFA); and biosecurity compliance systems for different agricultural production systems.

Customers can specify products that fully comply with the requirements of a particular product defined in a standard; for example, a customer could specify a "*composted soil conditioner that fully complies the current edition of the AS4454 Australian standard*."

Customers can also specify particular variation/s for a product that otherwise complies with a published standard; for example, a customer could specify a "*composted soil conditioner that fully complies the current edition of the AS4454 Australian standard; with the exception that the pH shall be between 6 and 7"*. In this instance the pH specification complies with the standard, but is more tightly specified than the range allowed for.

Note however, in addition to characteristics that can be analysed in a laboratory; additionally standards often specify processing requirements, labelling and product information requirements. These requirements commonly relate to health and safety risks, and to correct use of the product.

The Four categories of quality assurance commonly requested of suppliers are described below from most risky to least risky from the customer's point of view (more ☆ is better!).

Self declaration ☆

This is referred to as first party assessment.

The manufacturer self proclaims that they make products of a certain quality, possibly claiming compliance with an Australian Standard. This can be adequate for low risk products, but it depends on the reputation, integrity and image of the company in the market.

This is the least reliable form of quality assurance for a customer as it relies on the manufacturers own self proclaimed and unverified claims relating to product quality.

Customers should always ask for evidence of product claims that are relevant or important to their safety and performance requirements.

Customer-supplier assessment ☆☆

This is referred to as second party assessment.

In this system, the customer audits (checks) the supplier's operations, procedures and records to satisfy themselves that the customer can deliver on their product claims relating to quality (and/or safety or legal compliance).

Again the customer places particular emphasis on the processes, products and characteristics relevant to the customer.

This can be an excellent method if the customer has the resources and expertise to audit the supplier and the supplier is willing to subject their system and people to such audits. This approach is only common for large, wealthy buyers.

In general, this is an effective method as suppliers can be subjected to multiple audits and have technical resources tied up in these audits. From a customer's point of view they can generally be very confident that products meet their requirements.

Quality system verification or certification

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This referred to as third party assessment, where an independent organisation conducts compliance assessment and audits to assess and independently verify that the supplier complies the requirements of an **industry quality scheme** or a **published quality Standard**.

Independent verification or certification of a quality system relies on the expertise of the independent auditor. This involves bi/annual compliance audits and verification.

Audits will assess the quality system, but also check to ensure the system is delivering products that meet the advertised specifications. Consequently, quality system audits also assess the consistent achievement of product conformance.

Requesting evidence of independent verification of is a simple and effective method for customers to receive assurance of consistent product quality.

Consulting and certification organisations often specialise in particular industry sectors, manufacturers should work with organisations with experience in the relevant industry. One ROU client initially developed their QMS with the support of a company whose expertise is in QMS for mining and international shipping. The management system is now being overhauled with the ROU to provide a streamlined quality management system that is directly relevant to the

risks and objectives of this organics recycling enterprise.

Further details on basic process control systems and ISO 9001 QMS can be found in Information Sheet No. 3-1 in this package.

Product certification ☆ ☆ ☆

Also a type of third party assessment, where an independent organisation conducts compliance assessment and audits to assess and independently verify that the supplier complies with product claims and/or the requirements of a published **product standard**.

Requesting evidence of independent verification of is a simple and effective method for customers to receive assurance of consistent product quality.

Independent verification or certification of product compliance relies on the expertise of the independent auditor. This also involves annual or biannual compliance audits and verification.

With compliance or surveillance audits commonly 12 months apart, auditors necessarily assess the management system to ensure the system is capable of complying with the quality standard on a reliable basis.

For product certification to a published Australian Standard such as *AS4454 (2012) Composts, soil conditioners and mulches*, JAS-ANZ accredited certification organisations will require that a manufacturer demonstrates a

- a compliant ISO 9000 QMS, or.
- a "System 5" compliant management system (sometimes referred to as "QMS lite").

The standard itself requires a "verifiable system of production". Different verification or certification organisations take quite a different interpretation on the requirements of a System 5. Regardless a (compatible) process control system that provides assurance of consistent product conformance is required.

The capability of the company to consistently manufacture a product to a particular standard is verified by 'type testing' of successive product batches. This involves the analysis and demonstration of compliance of representative samples of product from a minimum of three successive batches of product.

Conclusion

Third party verification provides the simplest option for customers for assurance of product compliance with manufacturer claims.

A certified management system provides a basis consistent product quality, and is a more rigorous process oriented system that allows manufacturers to produce many product lines under a single certification. However, it does not necessarily provide assurance of specific product attributes, and the responsibility remains with specifiers to define the particular product type and attributes relevant to risk management and to product performance objectives.

Independent verification or certification of compliance with a published product standard also provides a basis consistent product quality that meets requirements.

The direct assurance of compliance with published health and safety, and risk management requirements in product standards such as AS4454 (2012) is an advantage for customers provided that:

- full compliance with the standard is specified;
- that a lab test certificate is not accepted as evidence of compliance with all requirements in the standard.
- That the specifier defines the particular product type and attributes required

Getting started

Make sure you select and specify the right product for your needs.

The ROU provides services for specifiers and buyers to define product requirements for safe and beneficial use in particular applications.

The ROU provides a range of services for recycled organics manufacturers and distributors, including basic process control systems through to compliant QMS. We can fast track your management system; ROU also provides services for design and development or performance based product specifications for specialised applications.

Notes:

Important references

- AS/NZS ISO 9000 (2006) Quality management systems—Fundamentals and vocabulary. Standards Australia Limited. Sydney, Australia..
- HB 18.28 - 2005 Conformity assessment - Guidance on a third-party certification system for products. Standards Australia, Sydney, NSW.
- AS 4454 (2012) Composts, soil conditioners and mulches. 4th edn. Standards Australia, Sydney, NSW.

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