

UNDERSTANDING THE TRANSNET GEONET DATA SHEET WITH RESPECT TO REPORTED VALUES

1.0 Introduction

There are two terms that are used on the Transnet Data Sheets that may require further explanation.

MAV = Minimum Average Value

MARV = Minimum Average Roll Average

2.0 MARV Approach

There are numerous detailed explanations on the use of adopting a statistical confidence to the site acceptance of geosynthetic products. Of course the designer and the purchaser of the geosynthetic product need to know with a degree of confidence that the product that was specified and paid for meets the required minimum property values. Certainly in the geotextile industry and for the acceptance of nonwoven geotextiles the MARV approach has been largely embraced by industry. The relevance of the MARV approach to other geosynthetic products is doubtful but is in spite of these concerns, starting to be used more widely for other geosynthetic products such as GCL's, geomembranes, geonets and others.

MARV is a statistical analysis of product tested by the manufacturer during production, such that when sold, the manufacturer has a 97.5% confidence that the product will meet product published specifications. This then allows a CQC programme to be implemented such that the purchaser can test the product and provided the product meets the published specifications (with 97.5% acceptance allowed and an acknowledgement that 2.5% of product will not meet the specification requirements) then product is accepted for use.

$MARV = \text{Mean (production)} - 2SDs \text{ (production)}$

For a highly variable manufactured product, such as a lightweight nonwoven geotextiles, then there is justification for manufacturers to control their product in such a manner.

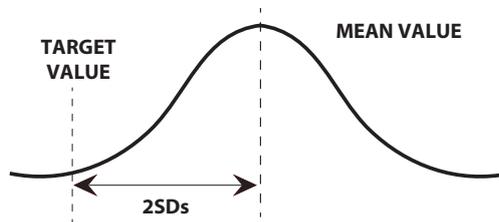


Fig. 1 MARV Approach assuming a normal distribution of results

3.0 MAV Approach

Producers of products that have adopted a policy of "zero product failure" can be penalised under a MARV system. For example:

In geosynthetic products where a manufacturer has adopted a "nil fail" approach then the shape of the distribution curve will be dramatically skewed to overcome possible production variations.

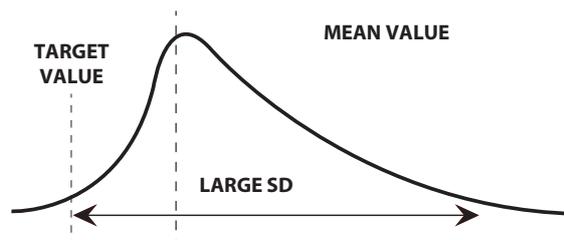


Fig. 2 MAV Approach using a "zero failure" approach



When a statistical analysis of results is carried out, the apparent standard deviation may be relatively high and will lead to an under-reporting of the apparent MARV value. This is solely due to an assumption that the standard distribution of results is normally distributed and that to achieve an apparent 97.5% confidence of acceptance that the mean value should be reduced by two times the production standard deviation.

4.0 The Outcome from a CQA Perspective

Third party certifiers are commonly engaged on construction projects to ensure that the supplied product meets specification requirements. The adopted approach under a MARV approach is that when the average result of the product tested, meets the minimum specification limits of the property required, for the test method specified, from site audited product, it is accepted.

Under a manufacturers MAV approach it is implicit and identical to a MARV approach that the average result of the product tested will meet the minimum specification limits of the property required, for the test method specified, from site audited product and is accepted.

From a CQA approach there is no difference to product acceptance levels, rather differences in manufacturing control processes leading to variations in data sheet nomenclature.

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