

Technical paper 2.10 Average Weight – Pre-packaged Goods



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Average Weight- Pre-packaged Goods

Introduction

Everyone is familiar with the ever-growing number of fixed weight pre-packaged goods in our shops and supermarkets, especially in the fresh food departments. There is a subtle, yet important difference, between the weight shown on pre-packaged goods and that on 'unpackaged' fresh product (e.g. fish bought at the fish counter and weighed on a retail counter scale.)

The weight displayed and/or printed out in the fish counter example is the actual weight plus/minus the allowable permissible error for the scale. By contrast the weight shown on pre-packaged goods is the average statistical weight as defined within the latest 2006 Packaged Goods regulations which came into force on the 6th April 2006.

Pre-packaged goods are either filled automatically or via operators carrying out high speed manual assembly or packing. (Manual assembly accounts for a large proportion of pre-packaged snack foods, ready meals and pre-packed soft fruits such as strawberries). A degree of variation in the content of the packages is inherent in all such processes. The aim of the average system is to define acceptable tolerances for that variation, so that the purchaser may buy with the confidence that he or she are protected against short weight or measure, while businesses are protected against unfair competition. (See section on TNE)

The 2006 Regulations repeal Part V of the Weights and Measures Act 1985 and replace the Weights and Measures (Packaged Goods) Regulations 1986 (SI 1986/2049). They form part of a program aimed at simplifying UK weights and measures law within the requirements of the relevant EC Directives. The Directives, which are implemented through these Regulations, are Directive 75/106/EEC and Directive 76/211/EEC, governing the quantity control of packaged goods under the 'average' system of quantity control. This system was first introduced in 1980 and before that, UK law required all indications of quantity to be minimum indications (that is, the quantity had to be at least equal to that indicated). The new Regulations reflect more precisely the wording in the Directives.

The average system applies to most goods which are pre-packed in pre-determined quantities by weight or volume, including most foodstuffs and non-foodstuffs. Its aim is to provide a defined regulatory framework for the automatic filling of packages. As its name suggests, the average system allows a proportion of packages to fall below their stated quantity within a specified tolerance (see Packers' Rules below). This is in principle a difference from the older weights and measures legislation, which is sometimes referred to as the 'minimum' system.

The 2006 Regulations apply to all packages made up in quantities of 5g to 25kg, where the packer intended all the packages to be of the same nominal quantity. By comparison the old regulations specified Prescribed Goods which were subject to the regulations, whilst other goods

not in the prescribed list could be packed to the average system on a voluntary basis. The new regulations therefore have a much wider scope than the previous legislation.

For the purposes of the Regulations a “package” is defined as the combination of a product and the individual package in which it is packed when:

- *it is placed in a package of whatever nature without the purchaser being present and;*
- *the quantity cannot be altered without the package either being opened or undergoing a perceptible modification (except in the case of knitting yarn!).*

In distinguishing between the contents and the packaging, the approach of OIML Recommendation 87 is recommended. This classifies as packaging ‘everything that is intended to be left over after use of the product, except for items naturally in the product. ‘Use’ includes consumption or subjecting to a treatment. As an example, using this definition the stick in a lollipop is considered part of the packaging, as are the immediate wrappers on wrapped sweets or a tea bag where the bag itself would be treated as part of the packaging. Examples of items naturally present in a product include crust on cheeses (e.g. Stilton), and edible skin on sausages.

The Packers’ Rules

The Directives set out three rules with which packers must comply:

- 1) *the actual contents of the packages should not be less, on average, than the nominal quantity;*
- 2) *the proportion of packages which are short of the stated quantity by a defined amount (the “tolerable negative error” or TNE) should be less than a specified level*;* and
- 3) *no package should be short by more than twice the TNE.*

*Note that previous regulations have given an explicit limit of 2.5% in rule 2 for the proportion of packages below T1, whereas the 2006 regulations give varying limits depending on the method of sampling and the sample size. However, in all cases in schedule 2, the acceptable limits equate to a value greater than 2.5%.

The Law for Packers

The Weights and Measures (Packaged Goods) Regulations 2006 (SI 2006 No 659) contains the requirements that packers have to meet. The regulations cover the making up and marking of packages. Previous regulations defined the type of weighing equipment that could be used for making up and checking packages, this has now been replaced with a simplified requirement that packers use equipment which is suitable for the purpose. An additional change is to remove the distinction that used to exist between equipment used for making up packages and that used for checking them. Under the old legislation packers had to use prescribed and verified equipment for making up packages but could use unverified equipment for checking; now any equipment used for making up or checking packages must comply with all relevant weights and measures legislation, including European Directives such as the Non-automatic Weighing instruments Directive and the Measuring Instruments Directive. However packers who were legitimately using

unverified equipment for checking packages before these regulations were introduced can continue to use that equipment without the need to have it verified.

It is the duty of the packer to ensure that the equipment used for making up and checking packages remains accurate at all time.

Tolerable Negative Error

It is accepted that for any given filling process there will always be some deviation between pack to pack fill values. The legislation sets limits on these small deviations to ensure that they are within acceptable limits. An important concept is the ‘Tolerable Negative Error’ or TNE which is calculated from the nominal quantity being packed, see table below from schedule 3 of the 2006 Regulations.

Nominal quantity in grams or millilitres	Tolerable negative error	
	As a percentage of nominal quantity	g or ml
5 to 50	9	-
from 50 to 100	-	4.5
from 100 to 200	4.5	-
from 200 to 300	-	9
from 300 to 500	3	-
from 500 to 1,000	-	15
from 1,000 to 10,000	1.5	-
from 10,000 to 15,000	-	150
above 15,000	1	-

It can be seen from the table that as the nominal quantity increases, the banding of the TNE alternates between a fixed value and a percentage of the nominal weight.

