

PEANUT BUTTER

□ Pantzaris, T P and Elias, B A



Peanut butter has long been a very popular food item in the USA and some other countries, and its use has now spread widely in Europe and is expanding rapidly to other regions. It is eaten mainly as a spread on bread or toast, often with fruit jelly or jam, but also in savoury sandwiches of all types in place of butter or margarine. It is a very wholesome product containing only two-thirds of the fat in butter, less saturated and *trans* fatty acids than margarines promoted as health foods, and more protein than prime steak.

Originally peanut butter was made simply of roasted peanuts with a small amount of salt added as flavouring, and was prepared by the individual shopkeeper a day or two before sale. The product was then meant to be consumed within a few days of preparation.

When large-scale production was introduced, several changes in formulation took place, such as addition of stabilizers to prevent oil separation, of sweeteners to increase its appeal to children (and reduce costs), *etc.* Such additives are considered a form of adulteration by purists, but they are here to stay.

STANDARDS OF IDENTITY

In the United States, the FDA introduced a standard of identity for peanut butter in 1968, where it was defined as a food prepared by grinding shelled roasted peanuts with the optional addition of not more than 10% of other ingredients. Its total oil content must not exceed 55 per cent.

The optional ingredients must perform a useful function and normally include salt, natural sweeteners, emulsifiers such as lecithin, and stabilizers such as fully hydrogenated vegetable oils and hard monoglycerides.

The addition of vitamins A,B,C,D or of artificial colour or flavour, or of non-nutritional sweeteners or preservatives is not permitted.

STABILIZERS

These products are added to peanut butter in order to prevent oil separation and the settling out of the solids into a mass at the bottom of the container. The stabilizers are saturated fatty compounds which form a soft in-

terlocking matrix of fat crystals able to hold the nut solids in suspension.

The crystal form of the stabilizer fat is important and it should be in the beta-prime phase. Suitable fats are hydrogenated cottonseed oil, hydrogenated palm oil, straight palm stearin (hard type) and mono-diglycerides from fully hydrogenated vegetable oils. The palm oil products have the advantage that they are not declared as chemicals on the product label and palm stearin is gaining particular favour since it is fully natural, less of it is needed and it usually has the lowest cost.

Beta crystallizing fats tend to transform gradually into larger, coarser crystals, giving a dull surface to the butter, and allowing oil separation.

Only the minimum amount of stabilizers should be used. Excessive amounts will tend to give a drier butter with poorer taste and flavour release. But too little stabilizer will lead to quick oil separation and early onset of rancidity. The optimum amount should be determined experimentally as it depends on the fineness of grind, cooling rates and other processing conditions.

FORMULATIONS

With the increasing health consciousness of EEC consumers, the use of palm oil products as stabilizers in peanut butter has become virtually standard practice. Of the four top-selling brands we have examined in the UK, three, (including the brand leader 'Sun-Pat' by the Nestle Company and the premium priced 'Whole Earth'), declare 'palm oil' on their labels. The fourth one declares the chemical 'E741' which stands for glycerol mono-stearate di-stearate.

Typical peanut butter formulae are as follows:

1. Top quality	
Roasted peanuts	96%
Palm stearin (hard type)	2%
Salt	2%
	100%
2. A slightly cheaper version	
Roasted peanuts	90%
Sugar	7%
Palm stearin	2%
Salt	1%
	100%
3. A slightly less sweet product	
Roasted peanuts	90%
Corn syrup solids	6.5%
Palm stearin	2%
or hydrogenated palm oil (IV 5-10)	
Salt	1.5%
	100%

NOTE ON NUT QUALITY

Almost any variety of peanuts can be used, provided they are aflatoxin-free, and are US grade No. 1 or equivalent, but Virginias have too low an oil content and require blending with other varieties or the addition of peanut oil.

The US Standard of Identity allows the skin to be left on the nuts, but this will introduce a slightly bitter note which may or may not be liked by the consumer.

In all recipes, the final total oil content should be adjusted to 55% by addition or removal of peanut oil.■