

# FOP -simplified nutrition labeling for combating NCDs problem in Thailand

## Abstract

In the friction process of two materials and in the presence of some proper lubricants, the wear process manifest itself as a material transfer from an element of the friction couple on the other, process specific to the selective transfer mechanism. The selective transfer can be sure achieved in a friction couple if there is a favorable energy, the relative movement and if in the friction area is a material made by copper and the lubricant is adequate (glycerin). The selective transfer mechanism is characterized by the physicochemical processes, which take place in the contact zones of the friction couples, and which to allow the selective transfer of some elements of the materials from a surface to the other, forming a thin superficial layer with the superior properties at wear and friction. This is a condition for any friction couple of high efficiently and a normal self-adjusting phenomena. The forming of this layer on the contact surfaces makes as fiction force to be reduced. It is in closely related to the structure formed by the selective transfer, between the metallic friction surfaces and with the properties these surface layers metallic.

The most important parameters concerning the physical state of the superficial layers are micro-tensions, the structure and its modification on friction surfaces, the structure defects as well as the way of distribution of the additions and of the alloying elements from alloy. The purpose of the present paper is research these parameters by the structural analysis with X-rays, as the research method of the thin superficial layers.

**Keywords:** selective transfer, superficial layer, structural analysis, intensity x-rays, width of diffraction lines, crystalline network constant

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## Introduction

During the last 20years, Thailand has become a middle-income developing country with an ageing population and a growing urban sector. Simultaneously, new nutrition challenges are emerging, caused by lifestyle changes, a reduction in physical activity, and consumption of more processed foods. Under globalization, the rapid growth of agro-industry and changes in food systems have allowed the Thai people to access a greater variety of foods, including foods containing high levels of sugar, fat and salt, while the consumption of fruit and vegetables has been comparatively low. These situations have led to rising trends in overweight, obesity and NCDs, which are the major concerns of not only the health sector, but all other development sectors as well. The death rate due to non-communicable diseases (NCDs) in Thailand is the highest among the ASEAN countries. Regarding the country's universal health care system, Thailand's future budgetary system may be burdened with the cost of health care, especially from NCDs.<sup>1</sup>

In the Global Health forum, food and nutrition education is recognized as one of the most effective strategies for combating NCDs. By studying the program in the United States of America, nutrition labeling was implemented in Thailand using a similar pattern as the USA's Nutrition Facts. Consumers, however, did not use the provided nutrition information, since it is not easily understood. Later on, academicians and NGOs introduced an Evaluative Nutrient-Specific type Front-of-Pack (FOP) labeling using a Traffic Light format. Food industries, however, did not accept this format and it could not lead to new/healthier product development. The Thai Food and Drug Administration later mandated a Non-Evaluative Nutrient-

Specific type as monochrome Guideline Daily Amounts (GDAs) for certain food categories. Most academicians, though, did not agree as to whether it as an effective educational tool.<sup>2</sup>

In 2014, the National Food Committee suggested that Thailand should implement a Conclusive Summary type FOP label instead, since it is more acceptable by food industries and easier for consumers to understand. In addition, its past implementation in several countries was found to encourage food industries to develop healthier products for the market. The logo, which is called the "Nutrition Symbol: Healthier Choice", was proposed by a working group and agreed upon in terms of the design and name by food industries, academicians, the public sector, as well as law makers.

A scientific committee consisting of academicians and representatives of food industries and the government was formed in order to prioritize food categories and establish criteria. The food categories selected were: (i) ready-to-eat meals, (ii) milk and milk products, (iii) beverages, (iv) mayonnaises and salad dressing, (v) seasoning sauces, (vi) butter and margarine (vii) instant noodles, (viii) instant porridge, (ix) soup, (x) snacks, and (xi) ice cream. The cut-off criteria is either based on total score of many nutrients (so called "cut-off score") or only the amount(s) of certain nutrient(s) (so called "cut-off value"). For example, since a ready-to-eat meal is normally consumed as one meal, its criteria consisted of the amounts of both desirable and undesirable nutrients totaling 8 types per 100kcal, which were summed as a passing score. The criteria for other food categories (e.g., milk and milk products, beverages) are cut-off values, which are only based on sugar content. The developed criteria were also discussed in a regional forum consisting of representatives

from Singapore, Malaysia, Indonesia, Brunei Darussalam, and China, as well as experts from Choice International Foundation, the Netherlands, in order to mutually recognize the criteria within the ASEAN region.

The criteria were finalized during a public hearing of the scientific committee with the Federation of Thailand Industry and professional associations, as well as producers and marketers of such food categories. The scientific committee also acted as a supporting unit for encouraging the interest of producers who lacked technical knowledge. The budget for this activity was supported in total by Thailand's Health Promotion Fund, which covered research and development, liaison, logo promotion and advertisement, and post-marketing monitoring of the approved products. The activity was given final-approval at a National Committee meeting chaired by the Deputy Prime Minister, who represented the Prime Minister, in November 2015. The established "Nutrition Symbol" was assigned to be owned by Thailand's Food and Drug Administration, which assigned the Nutrition Promotion Foundation, Mahidol University, to manage the symbol's uses.

At present, 51 local and international food producers have applied to have this symbol on their FOP of 232 products. In addition, many of them are studying the criteria in order to develop new products for the market. Nationwide implementation began since August 2016. It has been an agreement among the ASEAN countries that the annual regional meeting should be hosted by each country in the region. In

future, the impact study should be performed in 5 categories i.e. (i) number of participating companies and logo products, (ii) consumer awareness, (iii) product reformulation, (iv) campaign effects and (v) market impact. However, the priority for implementation should be based the country's context i.e. logo implementing status and consumption pattern. Health impact may not be appropriate in some countries if the main source of foods is still not based on industrial food products. The impact study in Singapore which has implemented this program for more than 15years should be one of the best practice for the region.

## Acknowledgements

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## Conflict of interest

The author declares no conflict of interest.

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