Risk Assessment of Perfume Ingredient for Cosmetic Applications

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Abstract

Thoroughly conducted risk assessments have confirmed that Tonalid® can be safely used as a fragrance ingredient (also for cosmetics).

Introduction

AHTN, also called Tonalid®, or Fixolide to quote some of its commercial names, was discovered in the early 1950's. This invention was assigned to Polak's Frutal Works. During the 1970's, Tonalid® supplanted most of the other polycyclic musks and became one of the most popular fragrance ingredients. Even today, 50 years later, perfumers worldwide recognize Tonalid® as being the most substantive non-nitro musk product with a true musk character. Its musk effect: harmonizing the whole fragrance with a warm and pleasant note results in a superior consumer acceptance with regard to finished products. Due to the combination of these properties and its cost effectiveness, Tonalid® is often used as a building ingredient in fragrance compounds.

The palette of fragrance ingredients numbers about 2000 aroma chemicals which are proactively investigated by the fragrance industry[1] through RIFM. The great number of aroma chemicals obliges RIFM to set priorities and, on the initiative of the fragrance industry, high priority has been given to Tonalid® in order to investigate and evaluate its safety more thoroughly.

In addition, Tonalid® is among the very few aroma chemicals for which the risk is being assessed during its complete life cycle in the European Existing Subtances Regulation program2.

Enumerating the results of all Tonalid®'s risk assessments would be too much. Therefore, this article will focus on the results of the safety evaluation of Tonalid® in cosmetics. The SCCNFP – Scientific Committee on Cosmetic and Non-Food Products intended for Consumers has recently published its final opinion, which states that Tonalid® is safe for use in fragrances for cosmetic applications.

How is the risk of chemicals evaluated?

Before the details of the SCCNFP's risk assessment are reviewed, a brief presentation of the general mechanism of risk assessment for chemicals is necessary.

Fig 1 shows the general risk assessment process for chemicals and in this case for aroma chemicals.

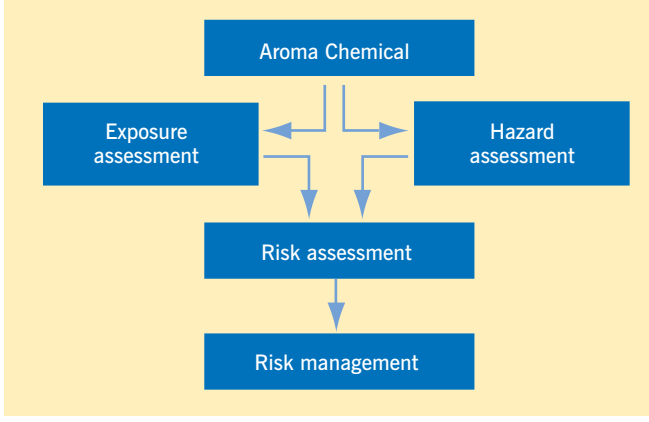

Fig.1: General risk assessment process for aroma chemicals

In order to be able to determine whether management of a risk is necessary or not, a detailed risk assessment report is needed. Exposure must be quantified for each relevant scenario. This may relate to production, compounding, consumer use, etc.

Various scientific tests are performed to assess the hazard. Among many tests we can name the tests regarding effects on the skin (irritation, sensitization, photo-toxicity and photo-allergy) and tests on dermal absorption.

By combining both exposure and hazard assessment, the risk can be assessed.

This is the general process to evaluate risk; however risk must be assessed for specific exposure scenarios.

Greenpeace detected AHTN in rainwater sampled in different locations in the Netherlands. According to the precautionary principle which is equivalent to risk elimination, they complained