

Psychophysics of Gustation and Olfaction

Sachiko Saito and Takeo Iida¹

Human Factors Research Department,
¹Human Engineering Department, Industrial Products Research Institute,
Agency of Industrial Science and Technology,
Ministry of International Trade and Industry,
1-1-4 Higashi, Tsukuba, Ibaraki, Japan

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The detection threshold and psychological intensity of 23 odorants were measured by the experimental psychological method, and the relationship between these values and molecular weight was described. In aliphatic alcohols from C₁ to C₆, butyl alcohol (C₄) showed the lowest detection threshold, which supports a Gaussian curve, and side-chain alcohols showed a higher detection threshold than straight-chain alcohols. Individual differences in detection thresholds within subjects were reasonably small, but individual differences between subjects depended on the compound. The subjective sensation caused by the mixture of multiple primary tastes was measured, and the interaction of mixtures was investigated. As a result, it was found that it is not easy to create a mixture in which the 4 primaries are perceived at a high confidence level. In such mixtures, a proper balance of 4 primary components, having 4 weak primaries, appeared frequently. However, 4 strong primaries were rarely perceived in a mixture.

1. Introduction

The purpose of this study is to clarify and discuss the psychological characteristics of gustation and olfaction for development and evaluation of a machine sensor. Quality, threshold, intensity, and hedonics are usually mentioned as the psychological characteristics of odor and taste, in which hedonics may be excluded from the characteristics concerned with the sensor in the narrow sense. The quality