Communication concerning the original purity criterion for natural mineral waters

This document does not apply to spring waters.

I. Legal framework

In accordance with European Directive 2009/54/EC, transposed into national law by the Royal Decree of 8 February 1999, one of the defining characteristics of natural mineral water is its **original purity**. This is what distinguishes it from other types of waters.

Natural mineral water means the following (see Royal Decree of 8 February 1999, Art. 4, point 9):

> "Microbiologically wholesome water, originating in an underground water table or deposit and emerging from a spring tapped at one or more natural or bore exits. Natural mineral water can be clearly distinguished from ordinary drinking water:
>
> a) by its nature, which is characterised by its mineral content, trace elements or other constituents and, where appropriate, by certain effects;
>
> **b) by its original purity**"
>
> Both characteristics are preserved intact because of the underground origin of such water and of measures protecting from all risk of pollution.

It is forbidden to market natural mineral waters that do not meet this definition. Indeed, natural mineral water must meet the most stringent quality requirements and be protected from any risk of pollution in order to preserve its original purity.

II. Explanation of the original purity criterion

The original purity criterion aims to ensure the highest level of consumer health protection and to guarantee the highest level of natural mineral water quality.

Original purity is particularly important for natural mineral waters, as they may not be treated and are bottled in their original state.

Original purity is made up of the following:

- Microbiological purity which aims at the absence of microorganisms of faecal origin, parasites and pathogenic microorganisms;
- Chemical purity which aim at the absence of contaminants and pollutants of anthropogenic origin.

The presence of impurities can be of natural or artificial origin. Some constituents may be naturally present in certain natural mineral waters due to their hydrogeological origin. They can present a risk to public health above a certain concentration. Some constituents come from pollution at source, due to various human activities. The general principle is that any anthropogenic pollution is prohibited.

Original purity is defined by three types of values:

a) Legal limit values
b) Guide values
c) Default values

III. Framing the notion of original purity

1. Regulatory approach and maximum limits

The chemical constituents of natural mineral waters for which maximum limits are set are listed in point I.2 of the Annex to the above-mentioned Royal Decree of 8 February 1999 and in Table 1 below. These maximum limits are generally stricter than those defined for other types of waters intended for human consumption.

Table 1: Maximum limits that may pose a health risk to consumers if exceeded

Constituents	Maximum limit	Unit	Comments
	Constituents naturally present in natural mineral waters		
Antimony (Sb)	5.0	µg/l	These constituents must be present in the water naturally and may not result from contamination at source. (*) The maximum nitrate concentration that applies when granting a marketing authorisation for natural mineral waters is 25 mg/l.
Arsenic (As)	10	µg/l	
Barium (Ba)	1.0	mg/l	
Cadmium (Cd)	3.0	µg/l	
Chromium (Cr)	50	µg/l	
Copper (Cu)	1.0	mg/l	
Cyanide (CN)	70	µg/l	
Fluorides (F)	5.0	mg/l	
Manganese (Mn)	0.50	mg/l	
Mercury (Hg)	1.0	µg/l	
Nickel (Ni)	20	µg/l	
Nitrates (NO3)	50 (*)	mg/l	
Nitrites (NO2)	0.1	mg/l	
Lead (Pb)	10	µg/l	
Selenium (Se)	10	µg/l	
	Anthropogenic constituents		
Pesticides (per individual substance)	0.1	µg/l	
Pesticides (as total)	0.5	µg/l	Natural mineral waters with a total pesticide content of over 0.1 µg/l do not meet the original purity criterion (see point 2).
Polycyclic aromatic hydrocarbons (as total of reference substances)	0.1	µg/l	Natural mineral waters containing polycyclic aromatic hydrocarbons in excess of 0.01 µg/l per individual substance do not meet the original purity criterion, unless it can be demonstrated by hydrogeological assessment that their presence at a higher level is of natural origin (see point 2).

For some substances, two maximum limits apply: a value that aims to protect health and a value that determines the level of original purity.

Nitrates can occur naturally in water as part of the nitrogen cycle. However, levels above 25 mg/l can only be the result of anthropogenic pollution at source.

2. Guidelines and guide values

A European guidance document has been drawn up by the authorities in the Member States, under the coordination of the European Commission. The aim is to establish a common approach across the EU to the question of whether a natural mineral water complies with the definition laid down in the legislation, and thus with the criterion of original purity. This non-regulatory approach does not prejudice any national measures taken by a Member State.

Guide values for anthropogenic substances present in natural mineral waters have been set at the lowest possible level, so that the presence of the substances concerned up to these levels does not compromise the quality of natural mineral water with regard to the original purity criterion provided for in the definition of natural mineral water. These guide values can be found in Table 2 below.

Table 2: Guide values for anthropogenic substances present in natural mineral waters

Parameters	Guide value	Comments
Polycyclic aromatic hydrocarbons (PAH)	0.01 µg/L for individual substances	As fluoranthene and naphthalene can form naturally in the environment and can therefore be detected at levels higher than the guide value, hydrogeological assessments are required on a case-by-case basis to ensure that the natural origin does not affect the original purity of natural mineral water.
Volatile organic compounds (VOCs)	1.0 µg/L for individual substances	Some VOCs can occur naturally in the environment. Consequently, a case-by-case hydrogeological assessment may be necessary if higher levels of these substances are found in natural mineral water.
Trihalomethanes (THMs)	1 µg/L for individual substances	
Pesticides	0.1 µg/l for the sum of all individual pesticides and their (relevant or non-relevant) metabolites 0.03 µg/l for aldrin, dieldrin, heptachlor and heptachlor epoxide.	Operators must carry out a case-by-case hydrogeological investigation and a cause analysis if higher levels of a pesticide and/or its metabolites are detected in natural mineral water.

The presence of substances listed in Table 2 below the corresponding guide value does not affect the quality level of natural mineral water and complies with the original purity criterion of the definition. Should a natural mineral water fail to meet these guide values, it may then be useful to assess the measures to be taken on a case-by-case basis, taking into account hydrogeological variations and potential shortcomings in the protection of the source or aquifer. The person exploiting the source must investigate the cause of the pollution and take appropriate measures to eradicate it.

As a general rule, source operators are strongly advised not to wait to take action when they notice that the level of an anthropogenic pollutant is approaching the guide value.

3. Default approach

Where legislation does not provide for maximum limits and there is no guide value for anthropogenic pollutants, the default approach is to use the limit of detection (LOD) or limit of quantification (LOQ) of the validated reference analytical method as the maximum value for the substance in question.

The qualitative method highlights the presence of a substance and provides an answer in terms of presence/absence based on the method's LOD. The quantitative method measures the quantity of a substance expressed as a numerical value with a minimum value corresponding to the method's LOQ. The LOD is the most suitable limit for checking compliance with the original purity criterion. However, for technical and practical reasons, it is permitted to use the LOQ.

In practice:
If it is demonstrated that the content of the parameter relating to one or more anthropogenic pollutants is ≥ LOQ, recognition as natural mineral water is not granted, in accordance with Article 4, point 9 of the Royal Decree of 8 February 1999, and is withdrawn if the natural mineral water is already marketed, in accordance with Article 2(3), point 3 of the Royal Decree of 8 February 1999.

References:

Directive 2009/54/EC of the European Parliament and of the Council of 18 June 2009 on the exploitation and marketing of natural mineral waters

Commission Directive 2003/40/EC of 16 May 2003 establishing the list, concentration limits and labelling requirements for the constituents of natural mineral waters and the conditions for using ozone-enriched air for the treatment of natural mineral waters and spring waters

Summary report of the standing committee on plants, animals, food and feed, 16 October 2017

Supporting document for the standing committee on plants, animals, food and feed meeting of 16 October 2017 - Document providing indications for competent authorities and food business operators on compliance of natural mineral water with the definition laid down by Annex I to directive 2009/54/EC of the European parliament and of the council of 18 June 2009 on the exploitation and marketing of natural mineral waters, 16 October 2017