# *ABOUT Cu 5-9N*

## Purity of Copper

**Purity** of copper is defined by the contents of the basic substance and expressed in percentages defined as a difference between **100 %** and the sum of **supervised impurities** (elements).
**Supervised impurities** - the list of elements are measured in the sample for definition of purity.

## What does mean Cu 5-9N?

| Cu 5-9N | | Sum of All SUPERVISED IMPURITIES, < ppm |
|---|---|---|
| Cu 5N | 99.999% | 15.0 |
| Cu 5N+ | 99.999+% | 9.50 |
| Cu 6N | 99.9999% | 1.50 |
| Cu 6N+ | 99.9999+% | 0.950 |
| Cu 7N | 99.99999% | 0.150 |
| Cu 8N | 99.999999% | 0.0150 |
| Cu 9N | 99.9999999% | 0.00150 |

***There are a few important moments:***

- List of SUPERVISED IMPURITIES which can be chosen. SUPERVISED IMPURITIES are defined usually by the known standards (GOST 859-2001, ASTM B170, ISO) or specifications between the manufacturer and the customer.
- Laboratory (the equipment, qualification of the personnel and ect.) and methods by which impurities will be measured.
- Correct calculation of the received results of measurements.

***For example, 8N denotes that Sum of All SUPERVISED IMPURITIES < 0.0150 ppm.***

- The best limits that we saw are 0,005 ppm or 0,001 ppm (China and Germany, GDMS) for elements that are available a little or no in the-nature and in copper especially. But by this method the oxygen and sulfur can not be good.
- If we consider GOST 859-2001 (Russia), ASTM B170 (USA), ISO (European Union and others), 16 elements, it means sum of impurities have to be less 0.0150 ppm and that everyone or someone have to be less than 0.0095 ppm. It is less than limits of detections (known to us)!
- There are some impurities which practically difficultly or impossibly (the equipment, methods of the analysis, materials and ect.) can be measured below 0.01 ppm and even 0.1 ppm.
- And ect.

***Also***

- The someone do not consider limits of detection in the sum of impurities ( <N - <0.00N ), they consider theirs are 0. We collided with it. It is wrong or then our some ingots are 100 %.

**We do not know where and how it is possible to measure it. We do not know where even Cu 6N is possible to be measured in accordance with GOST 859-2001, ASTM B170, ISO and by correct calculation.**

**There are enough offers of Cu 5-9N. Often they are not Cu 5N and even not Cu 4N according to GOST 859-2001, ASTM B170, ISO. In general, if someone starts to speak about Cu 5N and above, it is necessary to find out what impurities they measure (All SUPERVISED IMPURITIES) for definition of purity. Also, where and what method was used, is it the laboratory sample or a guarantee for a lots? Ask the document in order to know what they mean.**