

# CERTIFICATE OF ANALYSIS



Product : Citric Acid Monohydrate Fine Granular

Lot number : UJ701

Manufacturing date : 01/2017

Date issued : 10/01/2017

Best use before : 01/2020

Date printed : 11/01/2017

Customer Order : 3709357 - CAP06332

CBT Delivery Number : 3722163009

The Quality Assurance Department certifies that this lot is conform our specifications.

The product meets all requirements of the following compendia, when tested accordingly : USP, FCC, EP and Commission Regulation (EC) N° 231/2012.

| Test  | Method                             | Results             | Units              | CB specifications  |
|---|------------------------------------|---------------------|--------------------|--|
| <u>Tested methods</u>                             |                                    |                     |                    |  |
| Appearance  | visual test                        | meets specification |                    | colourless crystals or white, granular to fine powder          |
| Odour   | odour test *                       | meets specification |                    | odourless  |
| Water   | Karl-Fisher titration              | 8.10 / 8.59         | % H <sub>2</sub> O | 8.10 - 8.70  |
| Identification                                    | EP *                               | meets specification |                    | meets requirements   |
| Sieving on (50 g, 5 minutes)                      | sieve test N° 20 (850 µm)          | 0.6                 | %                  | max 5.0  |
| Sieving through                                   | sieve test N° 100 (150 µm)         | 3.4                 | %                  | max 5.0  |
| Colour  | UV/VIS (50% w/v; 405 nm 1 cm cell) | 98.93               | % T                | > 98.00  |
| Clarity of solution                               | Colour *                           | meets specification |                    | meets requirements   |
| Colour of solution                                | Colour *                           | meets specification |                    | meets requirements   |
| Heavy metals<br>(sum: Cd, Cr, Cu, Pb, Hg, Zn, Ni) | ICP *                              | < 1                 | ppm                | < 1  |
| Aluminium   | ICP *                              | < 0.2               | ppm                | < 0.2  |
| Arsenic   | ICP *                              | < 1                 | ppm                | < 1  |
| Barium  | ICP *                              | < 1                 | ppm                | < 1  |
| Calcium   | ICP *                              | < 10                | ppm                | < 10   |
| Chlorides   | nephelometry *                     | < 5                 | ppm                | < 5  |
| Copper  | ICP *                              | < 1                 | ppm                | < 1  |
| Iron  | ICP *                              | < 1                 | ppm                | < 1  |
| Lead  | ICP *                              | < 0.5               | ppm                | < 0.5  |
| Magnesium   | ICP *                              | < 1                 | ppm                | < 1  |
| Mercury   | ICP *                              | < 1                 | ppm                | < 1  |
| Oxalates / oxalic acid                            | HPLC *                             | < 10                | ppm                | < 10   |
| Sulphates   | ICP *                              | < 30                | ppm                | < 30   |
| Zinc  | ICP *                              | < 1                 | ppm                | < 1  |
| Readily carbonizable substances                   | EP                                 | meets specification |                    | meets requirements   |
| Extraneous matter                                 | CB test                            | meets specification |                    | passes CB test   |
| Assay   | calculated by water content        | 99.98 / 100.47      | %                  | 99.80 - 100.50   |
| Suphtated ash/residue on ignition                 | FCC                                | meets specification |                    | meets requirements   |
| <u>Not tested methods:</u>                        |                                    |                     |                    |  |
| Tridodecylamine                                   |                                    |                     |                    | Not applicable for CB, only for solvent extracted citric acid. |

\* Results are confirmed by representative testing on finished products.

This lot was analysed and released by our authorized Quality Assurance Department and was found to meet the specifications as given above. This electronically issued and approved certificate is valid without signature.