

# Citrullin

## In Short

- **Citrullin** is a Food for Special Medical Purposes (FSMP) for use in the dietary management of rare metabolic disorders, e.g. Urea Cycle Disorders, such as NAGS Deficiency, CPS Deficiency, OTC Deficiency or Argininosuccinic Aciduria or Lysinuric Protein Intolerance, when supplementation with L-Citrulline is indicated
- **Citrullin** can also be used for the dietary management of Short Bowel Syndrome
- L-Citrulline – in powder form
- suitable for tube feeding
- 450 g tin
- Cave: **Citrullin** is not suitable for Citrullinemia

## Product Profile

**Citrullin** is highly concentrated L-Citrulline in powder form.

**Citrullin** is not fortified with micro-nutrients.

## Administration

**Citrullin** should be taken along with other food and supplementary to the regular protein supplement – if applicable. **Citrullin** is also suitable for tube feeding.

## Preparation

**Citrullin** may be mixed with the protein supplement as needed and taken with it. Stirred into liquids, such as water, (diluted) juice or milk (substitute), it should be drunk quickly. **Citrullin** may also be prepared with fruit puree and other foods permitted within the scope of the respective dietary management.

Always weigh the amount of **Citrullin** needed. Always prepare freshly.

**Function** **Citrullin** is suitable for prevention or correction of disease related L-Citrulline deficiencies.

**Indication** **Citrullin** is used supplementary in the dietary management of inborn Urea Cycle Disorders. L-Citrulline allows an adequate formation of Argininosuccinate respectively Urea and thus the excretion of Ammonia (excess Nitrogen) for prevention of Hyperammonemias. Cave: With the exception of Citrullinemia!

**Citrullin** can also be used supplementary in the dietary management of insufficient endogenous production of this amino acid, e.g. in Short Bowel Syndrome, for

maintenance of Urea Cycle function (elimination of Ammonia, prevention of Hyperammonemia). It can also be given as a substitute in the dietary management of Lysinuric Protein Intolerance. L-Citrulline counteracts the massive renal losses of Ornithine and Arginine.

**Dosage** The daily dosage depends on age, body weight and individual medical condition, and is, just as the right time for the daily intake, determined under medical supervision.

**Citrullin** can easily be combined with the products of the plus8-system.

**Important Notice** Must only be used under medical supervision. Not for use as a sole source of nutrition. For enteral use only. Only for people with rare metabolic disorders, e.g. Urea Cycle Disorders. Not suitable for Citrullinemia. **Citrullin** is not suitable for infants in the first year of life.

## References:

- Mizutani et al. (1984) Oral Administration of Arginine and Citrulline in the Treatment of Lysinuric Protein Intolerance; The Tohoku Journal of experimental Medicine 142(1):15-24. doi: 10.1620/tjem.142.15.
- Osowska et al. (2004) Citrulline increases arginine pools and restores nitrogen balance after massive intestinal resection; Gut 53(12):1781-6. doi: 10.1136/gut.2004.042317.
- Osowska et al. (2008) Impairment of arginine metabolism in rats after massive intestinal resection: effect of parenteral nutrition supplemented with citrulline compared with arginine; Clinical Science 115(5):159-66. doi: 10.1042/CS20070451.
- Saudubray et al. (2011) Inborn Metabolic Diseases – Diagnosis and Treatment: Disorders of the Urea

Cycle and Related Enzymes; Springer 5. Edition, Chapter 20.

- Singh (2007) Nutritional management of patients with urea cycle disorders; Journal of Inherited Metabolic Disease 30(6):880-7. doi: 10.1007/s10545-007-0718-4.
- van Vliet et al. (2014) Single amino acid supplementation in aminoacidopathies: a systematic review; Orphanet Journal of Rare Diseases 9:7. doi: 10.1186/1750-1172-9-7.

**NUTRITION INFORMATION**

Citrullin

100 g

<b>Energy</b>	<b>kJ</b>	<b>0</b>
	<b>kcal</b>	<b>0</b>
<b>Fat</b>	<b>g</b>	<b>0</b>
of which saturates	g	0
<b>Carbohydrate</b>	<b>g</b>	<b>0</b>
of which sugars	g	0
<b>Protein eqv.</b>	<b>g</b>	<b>0</b>
<b>Salt</b>	<b>g</b>	<b>0</b>

**Amino acids**

L-Citrulline	g	100
--------------	---	-----

**INGREDIENTS**

L-citrulline.

Delivery Unit	tin 450 g
Article Number	xx-001-98025
Delivery to	Pharmacies, clinics
Storage	Store in a cool, dry place.