

- ✓ Acrylamide REDUCTION
- ✓ Crispiness IMPROVEMENT
- ✓ Shelf-Life ENHANCEMENT

REDUCRYL TCA

Natural Solution by ND Pharma



REDUCRYL TCA™

It's Calcium based product engineered to reduce acrylamide levels up to an 80% in starch products and all kind of snacks and extruded foodstuffs that are being processed, fried and/or baked at high temperatures.

As an important mineral within health maintenance Calcium also exercises an important paper on the texture improvement of starchy products, especially potato as per interaction with the pectin within the cell wall. Chips treated with REDUCRYL TCA conserve all crispiness. When blanching is used to leach-out reducing sugars, REDUCRYL TCA restores firmness of the processed materials.

It's known that potato and starchy products presents a high number of variables in respect to the processing results, in function of the cultivar, season, weather and climate impact and influences coming from type, class, and other specimen attributes. When potato quality is not the optimal, REDUCRYL TCA also improves color, reducing brown-spotting reaching better aspect and minimizing deterioration and sensorial loosening.

MECHANISM OF ACTION

Acrylamide is formed mainly because the reaction-interaction between the amino-acid Asparagine and reducing sugars presents within the raw materials when processed at high temperature. As Calcium is a complex agent that can act over asparagine, this reduces significantly acrylamide production capacity.

Of easy application, REDUCRYL TCA help to reduce acrylamide levels, improving crispiness and color maintenance, with a simple application throughout a blanching step of 3 minutes @ 80°C. Increased concentration of REDUCRYL TCA will result in higher calcium uptake of raw materials and greater acrylamide reduction.

REDUCRYL TCA™

Is a mineral-based formula designed and engineered to reduce and block the formation of acrylamide in foods, used as processing aid and as recommended beneficial option as treatment for manufacturers and the industry in the fight to prevent excessive exposure to acrylamide by population and general consumers, but specially sensible population. It's a proprietary formula with proven results in acrylamide reduction (up to 80%), crispiness improvement and shelf life extension since product is made from naturally extracted high-quality ingredients also recognized as safe food additives and carriers.

Specifically designed for **Potato Chips** and **Extruded Snacks** fried and/or baked at high temperatures.

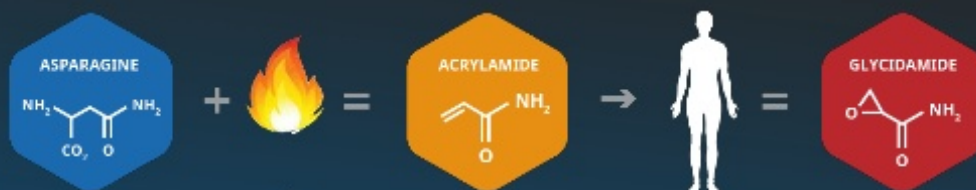
Salty snacks, multigrain and potato chips from rice flour, dried potatoes, corn flour and wheat starch.

White potato chips, regular cut, ruffled, rippled or crinkle cut, reduced fat, fat free, fat free with Olean, restructured, restructured reduced fat and sodium, unsalted, unsalted reduced-fat, lightly salted, sticks, skins, chips.

Vegetable snacks as chips, plantain chips, taro chips and sweet potato chips, etc.

Sweetened and Non-sweetened crackers as bread sticks, hard, melba toast, Zwieback toast, NS as sweet and non-sweet crackers, animal crackers, graham crackers, graham with chocolate cover, graham low-fat, graham fat free, toast thins, (rye, wheat, white flour), low sodium, 100% whole wheat low sodium, multigrain low sodium, snack low-fat and low sodium, snacks, high fiber, fat free, no added fat, wheat or rye, extra crispy, matzo, milk, multigrain made with whole wheat, wheat oat, and other flours, toast thins, water biscuits, bran whole bran, Pita chips, bagel chips, etc.

Why is Acrylamide in Food?



In 2002, researchers discovered that acrylamide is a by-product of heating asparagine, an amino acid naturally found in coffee and carbohydrate-rich food, including bread, toast, potato chips, fries, crackers, breakfast cereals, baby food, and breaded meat products.

Once inside the body, acrylamide is converted to glycidamide, a compound that is more carcinogenic than acrylamide.

What Are the Human Health Risks of Acrylamide?

At this time, the risks of acrylamide through the diet are uncertain. Acrylamide is a known carcinogen in laboratory animals, impairs fertility in male animals, and causes nerve damage to humans exposed in the workplace (FSA, 2002). Epidemiological studies conducted on persons with occupational exposure to acrylamide did not show an increased risk of cancer through acrylamide exposure, although the studies have been criticized because of the limited number of study participants. Two epidemiological studies published this year have looked for but not found a relationship between consumption of baked or fried potatoes and incidence of various cancers.

Any possible risks associated with acrylamide in food would arise from long-term exposure. Because acrylamide is produced through natural cooking processes, it is likely that humans have been exposed to it for a significant amount of time (FSA, 2002). Recent research at RTI International has characterized the process by which acrylamide consumed orally is metabolized in the human body. Results will contribute toward methods of measuring human exposure to acrylamide.

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FICHA TECNICA REDUCRYL TCA™

- 1. Nombre de la Firma** ND Pharma & Biotech
 - 2. Nombre del producto** REDUCRYL™
 - 3. Marca Comercial** REDUCRYL TCA
 - 4. Fábrica productora y dirección, provincia o país:**
ND Pharma & Biotech, BU13, Cornellá, Spain.
 - 5. Descripción** Formulado a base de ingredientes minerales y aditivos alimentarios para el control de acrilamidas en productos horneados.
 - 6. Composición:** Lactato Cálcico, Cloruro Cálcico. Reglamento 1925/2006 Anexo II y Reglamento 1333/2008 y legislación concordante.
 - 7. Características Físico-Químico** Polvo sólido blanquecino.
 - 8. Información microbiológica:** Contaje total: $<3 \times 10^3$ ufc/g, Mohos y levaduras: <100 ufc/g, E. Coli: Ausencia en 10g, Salmonella: Negativo en 25 g.
 - 9. Fórmula estructural** n/a
 - 10. Dosis y/o Forma de uso**
0.8 – 1,5 % sobre producto final.
 - 11. Materias primas empleadas o composición**
Las descritas
 - 12. Especificaciones de identidad y pureza** USP, EP, FCC y Codex Alimentarius, para los ingredientes.
Pureza 98'5% a 101'5% por ingrediente en composición.
Para uso alimentario con arreglo a la legislación vigente
-
- 13. Breve descripción del proceso tecnológico.**
Purificación, Ultra-filtrado, Cristalización y Mezcla de los componentes puros en las proporciones indicadas en la reivindicación de la invención.
 - 14. Tipo de envase utilizado**
Envases de 20-25 kg
 - 15. Etiquetado. Según CODEX STAN 107-1981**
 - 16. Condiciones de almacenamiento y/o conservación**
Almacenar fuera del alcance de la luz en envase original y lejos de humedad, preferiblemente en refrigeración después de abierto el envase.
 - 17. Licencia Sanitaria del comercializador y/o propietario de la marca:**
40/051679/V

Cost-Effective Solution

REDUCRYL TCA™

REDUCRYL TCA™ represents an advantage for industry and consumers, as not too many options for reduction of Acrylamide formation are available for the industry at a reasonable cost.

Enzyme extraction and food-grade enzyme-based preparations are made throughout expensive and costly technologies, including the preservation, packaging and maintenance of enzymes that may need constant positive cold and eventually freeze for storage, at risk of loosening of activity that may turn preparations into unviable ones, once application is needed or done.

As far as not all treatments for reducing Acrylamide formation are effective and viable, the option of a natural reduction of such, through a simple, permitted, technologically advanced product, is configured as the best solution available to industry and consumers within the market nowadays.

For more information and/or technical assistance:

Write Us to:

info@ndpharmabiotech.com

Ref: REDUCRYL TCA



REDUCRYL TCA™ is a registered trademark of The ND Pharma & Biotech Company Ltd. Effectivity of this product, as it happens with all enzymes, may depend on a number of variable issues to consider when applied to processes and foods. So prior to make any application we strongly recommend asking for assistance from our technicians and Tech-Center.

ndpharmabiotech@tech-center.com

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ND Pharma & Biotech – We do Science for You.™

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ND Pharma & Biotech Co.
A BIOPHARMACEUTICAL, BIOTECHNOLOGICAL AND
GLOBAL CHEMICAL COMPANY

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We have established a series of strong partnerships and alliances worldwide to serve more efficiently to our clients and customers. Our exclusive business model is part of our uniqueness within the creation of added value and strategic advanced solutions for you.
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