



CALCIUM CASEINATE IN BARS

EXTRUDED CALCIUM CASEINATE, THE PERFECT SOURCE OF CASEIN FOR HIGH PROTEIN BAR DEVELOPMENT

High protein nutrition bars are nutrient-dense products composed of a balanced combination of protein, carbohydrates and fats as well as vitamins and minerals. These bars become harder over time. Selecting the right protein is one way to **prevent hardening**.



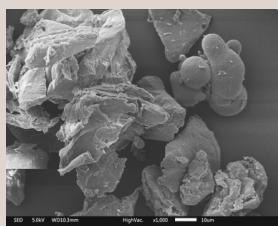
Want to produce protein bars containing casein?

- Selecting the right calcium caseinate will make all the difference when it comes to **texture and stability over the shelf life**.
- Calcium caseinate powders **have different properties** depending on the drying technique.

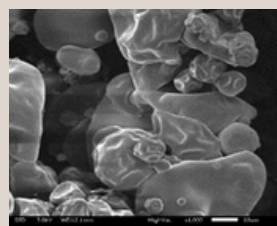
EPI INGREDIENTS PRODUCE HIGH QUALITY EXTRUDED CALCIUM CASEINATE, WHILE MOST COMPETITORS USED THE SPRAY-DRIED TECHNOLOGY.

Powders produced by extrusion have a compact structure, irregular particle shape and very little occluded air (*figure 1 and table 1*).

Fig 1: Microstructure of casein powders under scanning electron microscope (scale 10 µm)



EPI ingredients extruded calcium caseinate



Spray-dried calcium caseinate

Tab 1: Calcium caseinate powders characteristics

Powder characteristics	Units	EPI Ingredients extruded calcium caseinate	Spray-dried calcium caseinate
Bulk density	g/L	449	345
Tap density	g/L	604	512
Occluded air content	mL/100g	88	117

The characteristics of our extruded powder are ideal for producing calcium caseinate protein bars with a softer texture and less hardening, as shown in figures 2 and 3 :

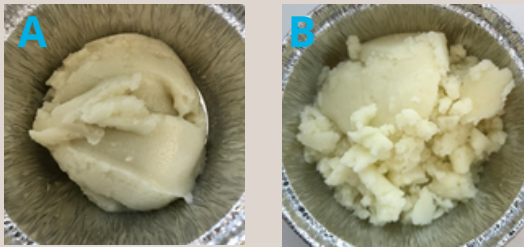


Fig 2: fresh mixture moulded before compression.
 (A) mixture with Epi Ingredients extruded calcium caseinate
 (B) mixture with spray-dried calcium caseinate

Hardness (N) of protein bars made with extruded and spray-dried calcium caseinate
 (Protein bar model: 39% of CaCas, 22% of sorbitol, 14% glycerol, 15% polydextrose syrup and 10% of vegetable oil)

Hardness (N)

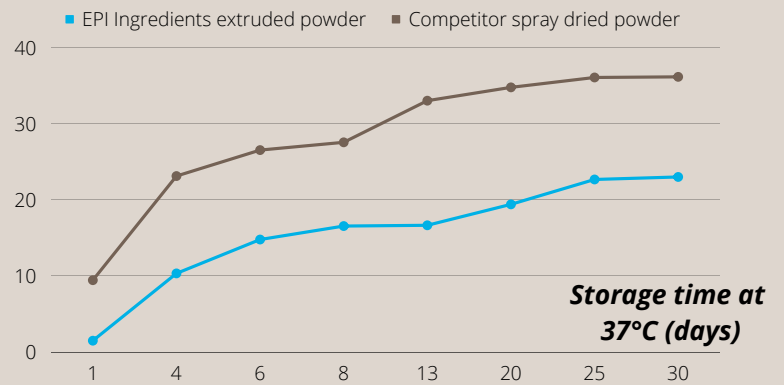


Fig 3: Hardening of high protein bars made with calcium caseinate



EPI INGREDIENTS calcium caseinate produces **softer, less crumbly** protein bars, with **better shelf-life** by preventing the hardening process.

High protein bar with EPI Ingredients calcium caseinate:



Ask us for: recipes, samples, application support

<https://epi-ingredients.com>