

# EXCIPIENTS USED IN NUTRITIONAL SUPPLEMENTS

COMMON EXCIPIENTS, THEIR USES AND FUNCTION





## **Excipients are used in all nutritional supplement products, in sachet, liquid, tablet and capsule form.**

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This paper details the use and function of different excipients used in nutritional supplement products.



## What is an Excipient?

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The term “excipient” generally refers to an inactive substance with no physiological effect which is used in the manufacture of tablets or encapsulation of nutritional supplements.

## Why are they needed in Nutritional Supplements?

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An excipient may be used to aid in the delivery or absorption of an "active" ingredient such as a vitamin or mineral. They allow for the more uniform dispersal of ingredients in bulk formulations to ensure each tablet or capsule has the correct strength of nutrients needed to allow for convenient and accurate dosage.

They may also be needed to help form the structure of a tablet, or to ease the flow of ingredients into a capsule. They also help sometimes in ensuring the stability of an active ingredient throughout the duration of a products shelf life but do not impact on the overall bioavailability of the active ingredients.

## How does Quest use Excipients?

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Quest Vitamins pioneered and exclusively use direct compression tablet technology which requires less processing and addition of excipients than the usual wet granulation process which exposes sensitive ingredients to heat and solvents to make ingredients easier to compress into tablets.

Quest nutritional supplements are manufactured using as few excipients as necessary and only when essential to the composition or stability of the product such as the use of cellulose and lecithin in our patented Timed Release matrix for tablets such as Quest Super Once a Day. All excipients used are hypoallergenic and are approved for safe use in foods.



## Common Excipient Ingredients and their uses:

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Dicalcium phosphate	Primarily used as an anti-caking and bulking agent.
Maltodextrin	Bulking agent for probiotics.
Microcrystalline cellulose	Bulking agent and disintegrant.
Silicon dioxide	Anti-caking agent, flow aid and helps to give tablets the hardness needed to maintain their form.
Magnesium Stearate	Used as a lubricant to prevent ingredients from sticking to manufacturing equipment during the compression into solid tablets. Quest use only vegetable based magnesium stearate.
Gelatine	Used for the outer casing of a soft gel capsule, Quest use only bovine sourced gelatine.
Hydroxypropylmethylcellulose	Also known as HPMC, used to make capsules shells as an alternative to gelatine. It can also be used as a thickener or emulsifier. Also used to coat tablets.
Glycerine	Used in the manufacture of soft gel capsules as a means of improving smoothness, providing lubrication.
Vitamin E	Used as an antioxidant to help protect sensitive oils from oxidising.

## Excipient Functions:

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**Anti Caking Agents** used in powdered or granulated materials, such as table salt, to prevent ingredients clumping together. Examples includes silicon dioxide and dicalcium phosphate.



**Bulking agents** sometimes known as binders or fillers. They may be used to increase the bulk volume of the ingredients to make it possible for the final product to have the proper volume for patient handling e.g. maltodextrin used as a base carrier in probiotics which have a very small volume.

**Antioxidants** such as vitamins C or E act as preservatives by inhibiting the effects of oxygen on sensitive oil based ingredients such as fish oils.

**Coatings and glazing agents** Tablet coatings protect tablet ingredients from deterioration by moisture in the air and make large or unpleasant-tasting tablets easier to swallow. For most coated tablets, a hydroxypropyl methylcellulose (HPMC) film coating is used which is free of sugar and potential allergens.

**Disintegrants** expand and dissolve when wet causing the tablet to break apart in the digestive tract, releasing the active ingredients for absorption. They ensure that when the tablet is in contact with water, it rapidly breaks down into smaller fragments, facilitating dissolution. Microcrystalline cellulose and carboxymethyl cellulose are examples of disintegrants used in food supplement manufacture.

**Lubricants** are added in small quantities to tablet and capsule formulations to help prevent ingredients from clumping together or sticking to machinery such as tablet punches or capsule filling machines during manufacture. Frequently used lubricants include magnesium stearate or glycerine.





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