

Pharmako CPO

Compressible Powdered Oils



Pharmako's Compressible Powdered Oils (CPOs) are an innovative material development which allows oily active ingredients to be included in tablet and powder formulations without leaching oil.

Overcoming the challenges of micro encapsulated oil.

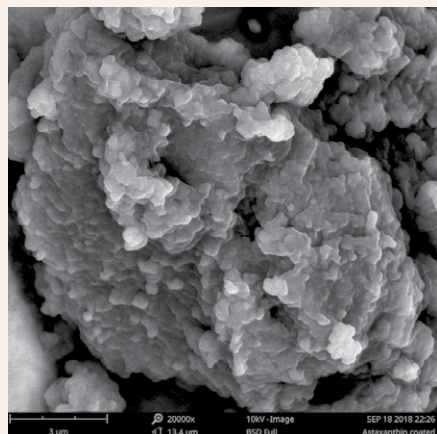
Often formulations are limited by the challenges of tableting with standard micro-encapsulated oils, which struggle with leaching, mottling, sticking and picking. Ingredient combinations are also often limited to their original diverse forms. Also, interactions amongst ingredients can often limit their usage together.

Pharmako's CPO technology performance and formulation advantage.

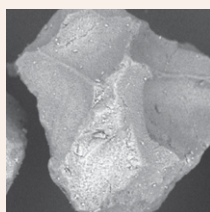
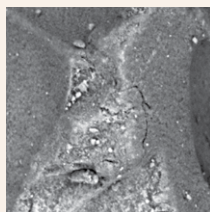
Pharmako's CPO technology allows oily active ingredients to become compressible powders suitable for tableting and ready-to-mix formulations. They offer better shelf stability than oils, with less sensitivity to air and oxidation and without an after taste or reflux – especially important when dealing with strong tasting or fishy actives.

Pharmako's CPO formulations are optimised for stability and loading. They have high oil capacity with a loading of up to 70% oil, and they display good dissolution properties.

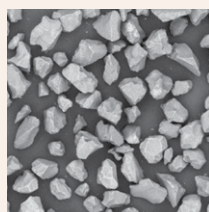
CPO at 20,000 x magnification with a scanning electron microscope (SEM). The tiny 1 micron pores can be seen at this magnification.



CPO at 9300 x magnification.



CPO at 3800 x magnification.



CPO at 490 x magnification.

Pharmako CPO formulations can be customised:

- to optimise diverse active ingredient(s).
- for customer requirements.
- for regulatory frameworks.
- for dosage format(s).

Pharmako CPO formulations are approved and may be used in multiple product sectors and applications including:

- cosmetic,
- pharmaceutical,
- veterinary,
- dietary supplements,
- food and beverage

Pharmako CPOs can be customised for oil ingredients such as:

- fish/marine oils,
- CLA,
- EPO,
- lavender oil
- astaxanthin
- CBD oil
- citrus oils.

Shelf life and stability.

Oils compressed with Pharmako's CPO technology often increase stability and shelf life.

Australian made.

Pharmako CPOs are made in Australia from pharmacopoeial grade ingredients, under cGMP standards.

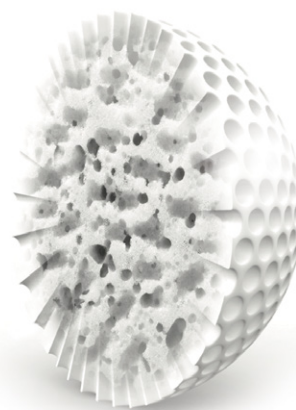
The benefit of non-encapsulated oils.

Traditional micro-encapsulated oil products have a crust around a liquid centre that commonly, when under pressure, breaks and spills out all its oil, which can spoil the end product (e.g. tablet).

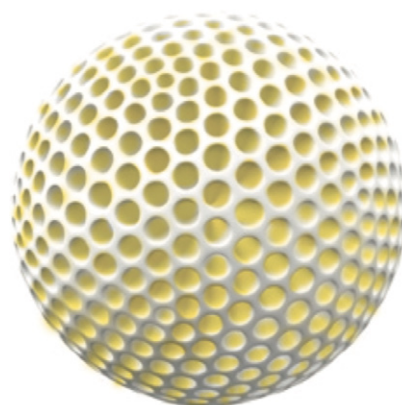
To overcome this problem of product spoilage from oils, Pharmako's CPO technology absorbs the oil into specially designed silica particles. When under large pressures (such as when tableting), Pharmako's CPO particles simply split into smaller particles, each still loaded with oil.



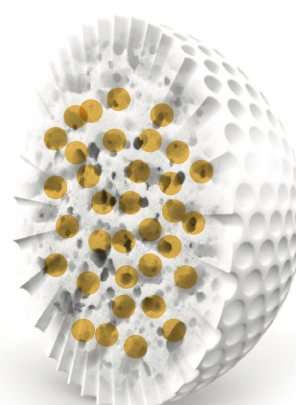
External view of Pharmako CPO particle prior to loading.



Internal view of unloaded Pharmako CPO particle



External view of loaded Pharmako CPO particle



Internal view of loaded Pharmako CPO particle

CODE / NAME	CPO	CPO-D	CPO-N	CPO-C
DESCRIPTION	COMPRESSIBLE POWDERED OILS	CPO - COATED/ DISPERSIBLE	CPO - COATED/ NATURAL	CPO - COATED/ CLEAN LABEL
COMPRESSIBLE	✓	✓	✓	✓
DISPERSIBLE (AquaCelle®)	✓	✓	✓	✗
NATURAL (AquaCelle®)	✗	✗	✓	✗
COATED	✗	✓	✓	✓
CLEAN LABEL	✗	✗	PARTIAL	✓
OIL CAPACITY	UP TO 70%	45%	40%	50%