



XtractorTM 500/1000

Industrial supercritical extraction equipment

Environmental friendly and efficient production of solvent free
extracts for the food, nutraceuticals and cosmetics Industry.
All parts are made of stainless steel. Compact design.

General

The Supercritical Fluid (SCF) Extraction Unit Xtractor 500/1000 is designed for commercial production of pure, solvent free extracts. The Unit allows a large operating range in both pressure and temperature. The Unit is built in two compact skid mounted frames that easily can be connected to the electrical network, cooling/heating water system and carbon dioxide storage.

Process

The extraction process is based on the dissolution of organic compounds with supercritical carbon dioxide (SCCO₂) at high pressure and elevated temperature. SCCO₂ is introduced into the extraction chamber where it dissolves the desired compounds.

“Loaded” carbon dioxide is replaced with “fresh” CO₂ in the extractor thus allowing a complete extraction. By arranging two extractors in series, in lead and guard mode, maximum utilization of CO₂ is achieved while still exhausting the feed material of all extractable compounds. The third vessel is simultaneously off-line for emptying/refilling before put on-line in guard mode. By this arrangement a continuous production of extract is achieved.

The “loaded” CO₂ is pressure-released and evaporated and the liquid extract is separated in either a one-step or a two-step separating process. The second step is optional and enables the separation of the extract in two fractions with different solubility.

The gaseous CO₂ from the separator is then liquefied and sent to the work tank, ready for reuse. The concentrated, solvent free, extract is collected from the bottom of the separator.

Process Items

Treatment Chamber

The Unit is equipped with three extraction vessels, net volume 200 L each. The vessels have easily operated lid assemblies. All vessels are supplied with baskets for easy loading/unloading of feed material.

CO₂ Unit

The CO₂-loop consists of the main process items as per the process flow scheme. It features a proprietary high-pressure membrane pump powered by a hydraulic unit. The three main process parameters, temperature, flow and pressure can easily be adjusted independently. This enables fine-tuning of the solvating performance of CO₂.

Instrumentation

The unit has a fully computerised control and data logging system to allow good quality control.

Installation

The Unit is built in two compact frames, with ready assembled piping and wiring. Easily accessible connection points for all utilities and ventilation system are provided.

Process Parameters

Values below are valid for the standard Unit. Other parameters are available on request.

Extractor volume	3 x 200 L
Max pressure	500 bar
Max CO ₂ flow	1 000 L/hour
Max temperature	100 °C
Separation	50 - 80 bar
Optional 1st separation	max 200 bar

