A047 - KONTROLLIERTE BEFEUCHTUNG

APPLICATION NOTE A047-ME01-1216B

CONTROLLED HUMIDIFICATION

A leading UK company specializing in synthetic bone repair materials for orthopeadic and dental applications use Bronkhorst products to perfect their production process. A leader in the research and development of bone graft technologies.

Bronkhorst have supplied Controlled Evaporation Mixing (CEM) systems for humidification of the furnaces that are used for the manufacture of the bone repair product.



Application requirements

The furnace at over 1200 degrees Celsius will produce yellow powder if the water is not added, hence the use of the Controlled Evaporation Mixing system (CEM). The properties will not change just the colour of the powder.
The colour is crucial as yellow powder is rejected by surgeons as they believe it to be inferior quality. Having a consistent white colour therefore is of upmost importance.

Important topics

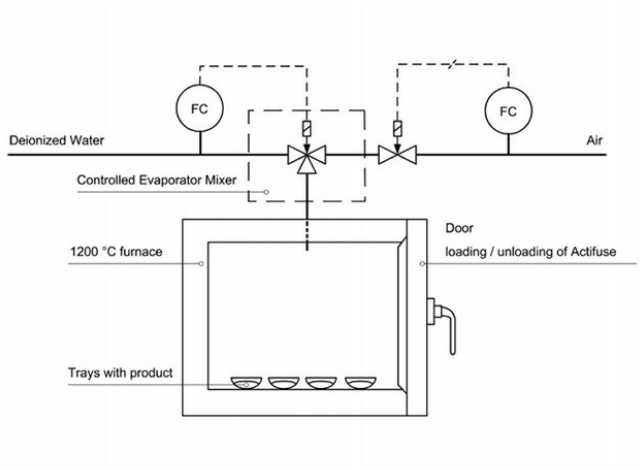
- Accurate dosing of air constituents
- Documentation of test conditions
- Repeatability
- Compact system

Process solution

Humidification of a furnace
After manufacturing the bone grafting powder it needs to be dried and sintered. The process is carried out in a high temperature furnace with a controlled atmosphere. If the atmosphere is not controlled properly, discolouration of the end product renders it useless for sale and cannot be re-worked. The accurate control of water to the furnace by means of a CEM, with air as the carrier gas, results in a perfect white colour recognised by the doctors using this product. Depending on the furnaces, the flow rate of water is accurately controlled at 42 g/h, 84 g/h or 122 g/h.

A high degree of control is needed for repeatable batch consistency of many years for this high value product.

BRIGHT local readout and control
As an option, the systems can be used in combination with BRIGHT local Readout/Control Modules, to give a better visualisation for the user.



Flow scheme

Recommended Products



CEM EVAPORATOR W-202A

Max. 120 g/h Flüssigkeit;
Max. 10 ln/min Gas

Druckstufe 100 bar

Sehr stabiler Dampf-Durchfluss

Flexibles Gas-/Flüssigkeits Verhältnis



EL-FLOW SELECT F-201AV

Min. Bereich 0,4…20 ln/min
Max. Bereich 0,6…100 ln/min

Druckstufe 64 bar

Kompakte Bauweise

Hohe Genauigkeit
& Wiederholgenauigkeit



LIQUI-FLOW™ L13

Min. Bereich 0,25 ... 5 g/h
Max. Bereich 5 ... 100 g/h

Druckstufe 100 bar

kompaktes, IP40 Design

Analoge, RS232 oder Feldbus I/O



BRIGHT SERIES

Kompaktes lokales R/C-Modul

helles, Weitwinkel 1.8" Display

Benutzerfreundliche Bedienung

Anzeige/Bedienung/Konfiguration

BRONKHORST (SCHWEIZ) AG

Gewerbestrasse 7

4147 Aesch BL (CH)

Tel. +41 61 715 90 70

info@bronkhorst.ch