

Mass Transfer Equipment Design Considerations For

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Mass Transfer Equipment Design Considerations

Cryogenic fractionators for natural gas liquids recovery plants have special design considerations for the mass transfer equipment owing to the fluid physical properties for fractionators that operate at high-pressure near the critical point. Over the years, the industry has equipped these NGL recovery units with trays and

MASS TRANSFER EQUIPMENT DESIGN CONSIDERATIONS FOR ...

Description. Mass Transfer and Absorbers deals with absorption and mass transfer processes and the factors to consider in designing absorbers. Calculations are supported by a uniform, generalized process driving force, complying with Maxwell's equation, and the coefficients are made as independent as possible in terms of the kind of diffusion and of the values of the concentrations.

Mass Transfer and Absorbers | ScienceDirect

Equipment design is frequently recognized as a key component in the success of GMP biologics manufacturing, but is not always implemented with full appreciation of the processing implications. In the case of mammalian cell culture, there are some recognized issues and risks that develop when transitioning to a large scale of operation.

Equipment design considerations for large scale cell culture

Design factors include surface tension, contact angle, capillary pressure, and pore radius. The heat of vaporization is supplied by conduction or convection from the upstream liquid through the membrane. The temperature gradient across the membrane is typically less than 2 0C making the process nearly isothermal.

06 Mass Transfer and Its Applications

Hydrodynamic considerations Mass transfer processes in agitated vessels are almost invariably turbulent, with mixing Reynolds numbers above 10 4 in the uniform ungassed Power number regime ($Re = ND^2 \rho/\eta$, where D and N are the impeller diameter and speed, and ρ and η are the liquid density and viscosity, respectively, (see Agitation Devices).

AGITATED VESSEL MASS TRANSFER - Thermopedia

Equipment design is frequently recognized as a key component in the success of GMP biologics manufacturing, but is not always implemented with full appreciation of the processing implications. In the case of mammalian cell culture, there are some recognized issues and risks that develop when transitioning to a large scale of operation. The developing demand for cell culture production capacity ...

Equipment design considerations for large scale cell ...

Nomenclature a_a e Effective interfacial area m^2/m^3 ft^2/ft^3 a_p Packing surface area per unit m^2/m^3 ft^2/ft^3 volume A Absorption factor $L M / (mG M)$ $-/-$ $-/A$ Cross-sectional area m^2 ft^2 A a Active area, same as bubbling area m^2 ft^2 A B Bubbling (active) area m^2 ft^2 A D Downcomer area m^2 ft^2 (straight vertical downcomer) A da Downcomer apron area m^2 ft^2 A DB Area at bottom of downcomer m^2 ft^2

Equipment for Distillation, Gas Absorption, Phase ...

Pharmaceutical powders and glass batch blends often have a tendency to de-mix (segregate or stratify) during storage and transfer. These bulk solids follow fundamental behaviors that, when understood, can be used to design equipment that will function reliably, eliminate stagnant regions and minimize product degradation. Flowability

Bulk solids handling system design | Processing Magazine

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Home | Koch-Glitsch

The modular design allows easy addition of more heat transfer area, but at a cost of increased pressure drop. Edges can be sealed with gaskets for lower pressures. Cleaning is relatively simple because the configuration can be disassembled and cleaned. For operating at higher pressures the edges can be welded.

Heat Transfer Equipment - processdesign

Gas-liquid volumetric mass transfer coefficient ($k L a$) Gradient due to power dissipation; upper limitation due to equipment design Both limitations and gradients in mass transfer rates can negatively impact fermentation performance Broth hydrostatic pressure Increase in magnitude with gradient along vertical axis

Scale-up of industrial microbial processes | FEMS ...

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Mass Transfer Operations for the Practicing Engineer

An invaluable guide for problem solving in mass transfer operations This book takes a highly pragmatic approach to providing the principles and applications of mass transfer operations by offering a valuable, easily accessible guide to solving engineering problems. Both traditional and novel mass transfer processes receive treatment. As with all of the books in this series, emphasis is placed ...

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The variables and design considerations for strippers are many. Among them are the entering conditions, the degree of recovery of the solute needed, the choice of the stripping agent and its flow, the operating conditions, the number of stages, the heat effects, and the type and size of the equipment.

Stripping (chemistry) - Wikipedia

Process design can be the design of new facilities or it can be the modification or expansion of existing facilities. The design starts at a conceptual level and ultimately ends in the form of fabrication and construction plans. Process design is distinct from equipment design, which is closer in spirit to the design of unit operations.