The Chemplant Static Mixer is an inline mixing device with no moving parts. This makes it a unique piece of processing equipment as it requires no external power source and is completely maintenance free. The Chemplant Static Mixer produces a homogeneous blend or dispersion in a laminar, transitional or turbulent flow regime within a very short length of pipe.

OPERATION
Chemplant Static Mixers have elements which rotate the fluid around a hydraulic centre. This directs flow radially to the walls and back to the element regardless of the velocity or Reynolds number. The elements are combined with alternating offsets to maximize mixing efficiency by utilizing the action of momentum reversal and flow division.

Turbulent Flow:
Mixing occurs mainly as a result of momentum reversal. This means that the fluid is forced to change the direction of rotation by the twist of the following element.

Laminar Flow:
Mixing occurs as a result of flow splitting and rotation. This causes build up of increasing numbers of layers of material and these layers split each time the fluid passes between two elements thus causing mixing.
PROCESS APPLICATIONS

MIXING AND BLENDING
Chemplant Static Mixer can process any combination of miscible fluids in all flow regimes. A Static Mixer in a turbulent flow regime removes any risk of stratification which regularly occurs if mixing is left to natural turbulence. The static mixer provides a mix equivalent of 80-100 pipe diameters.

DISPERSIONS
The uniform shear characteristics of the Chemplant Static Mixer results in accurate drop size prediction when processing immiscible fluids. This allows the designer to predict mass transfer very accurately. Dispersion of both gases and liquids are all achievable with this mixer.

CHEMICAL REACTION
By causing the fluid to rotate as it passes through a Chemplant Static Mixer, the velocity in the centre of the mixer is reduced and increased at the wall.

STANDARD PRODUCTS

SIZES
Range from 12mm Ø to 1500mm Ø

MATERIALS
Mild steel
Stainless steel
Hastelloys
CPVC
PVC
PTFE
Monel

END CONFIGURATIONS
• Plain
• Screwed
• Flanged

CUSTOM DESIGN OPTIONS
Chemical Plant & Engineering is willing to undertake custom designs including such options as injection ports, jackets, special materials and coded manufacturer.

Static Mixer elements can also enhance heat transfer coefficients when inserted into heat exchanger tubes.

APPLICATIONS

HYDROCARBON & CHEMICAL PROCESS
Blending additives to process streams
Gas and liquid scrubbing
Direct steam heating
Laminar flow heat exchange
Oil / Water sampling
Dispersion

WATER AND WASTEWATER TREATMENT
pH samples and control
Flash mixing of flocculation and coagulation aids
Disinfection
In-line aeration
Polymer addition

FOOD AND PHARMACEUTICAL PRODUCTION
In-line gas sparging
Mixing fragile, shear sensitive materials
Flavouring and coloration addition
Syrup dilution
Marbleizing, creating “layer effect”

PULP AND PAPER PRODUCTION
Stock bleaching and blending
Consistency control
Chemical preparation
Pulp and board production
Direct steam heating
pH control

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