



CATALYTIC PURIFIERS

CAUTION

Purge with an inert gas to remove all traces of air before admitting hydrogen!

RSI PURIFIERS' RCP series of catalytic purifiers promotes the combination of hydrogen and oxygen at ambient temperature and can provide close to complete elimination of one species in the presence of an excess of the other. Unit sizes are defined in terms of flow rates at which the units will reduce 1% oxygen in hydrogen to less than 1 ppm. The process produces both water vapor and heat. The water vapor can be removed, if desired, with conventional desiccants. RCP Series purifiers are of fully welded construction and all screens, pads, fittings and the like are made from 300 series stainless steels capable of handling full rated pressure at continuous temperatures as high as 450°C.

POISONING :

The process is sensitive to poisoning by heavy metals (e.g. lead, mercury, cadmium), by sulphur compounds, by oils, organic solvents and chlorine compounds. In some cases, poisoning will be permanent. Whenever there is doubt about the compatibility of individual process stream components with the RCP Purifier, it is recommended that the factory be consulted. Poisons, of course, should be avoided when possible. The structure and materials of construction of RCP Purifiers will, in many cases, allow vigorous thermal regeneration procedures.

INTERFERENCES:

Water condensation should be avoided. Liquids prevent contact between the process stream and the catalyst. If the process stream is operating near its' dew point, the RCP should be heated externally. Carbon monoxide interferes with the oxygen/hydrogen reaction. Elevated operating temperatures may be required when CO is present.

SIDE REACTIONS:

The catalyst in the RCP Purifier is a highly active high surface area precious metal on a ceramic substrate. At temperatures above ambient, depending on the feed stream, it can promote the methanation of carbon monoxide or carbon dioxide, the burning of hydrocarbons, the reduction of oxides of nitrogen, and other possibly unwanted side reactions. It is recommended that the factory be consulted about use of the RCP on unusual process streams.

ORIENTATION:

RCP Purifiers are intended for operation in a vertical position with the feed gas entering the top. Upflow may cause fluidization of the catalyst bed and attrition of the catalyst. Use in the horizontal position may cause settling and allow bypassing of the catalyst bed.

rsi purifiers (LLC)

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