



Allow customers to confidently and smoothly operate media in harshest conditions of corrosion, fouling, temperature and pressure.

Allow customers to push forward the efficiency and cost effectiveness of their chemical processes.

Case story #11

INDUSTRY	PHOSPHORIC CHEMISTRY
MEDIA – CONDITIONS	POLYPHOSPHORIC ACID, RED PHOSPHOROUS, water 300°C
MATERIALS	GT TOYO CARB+
EQUIPMENT	SHELL & BLOCKS REACTOR
YEAR	2016

A Japanese company produce phosphorous chemical products for high value end products.

The R&D department contacted GT to develop in collaboration a special reactor for their lab scale production.

Under operating conditions, glass lined material and tantalum suffer corrosion.

GT proposed to adopt grade GT-TOYO CARB+, an ultrafine grain graphite, from TOYO TANSO, impregnated with carbon material. This grade can withstand temperature up to 450°C in air and up to 1500°C without oxygen. With high thermal shock resistance and exceptional corrosion resistance.

The equipment is designed with several separated cooling and heating circuits, multiple thermowell and connection for the instrumentations.

This equipment associates reactor and heating/cooling function all-in-one.

GT analyzed process data after startup of equipment and assisted customer to optimize set up of the equipment parameters.

Several modifications were done in close collaboration.



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Reactor with thermosiphon – 300°C – phosphorus chemistry – Japan

Length 1.1m , diam ~ 250mm – 250 kg – HTA 0.086 m² - 3 service side circuit, cooling and heating – 6 thermowell – 9 process inlet/outlet nozzle



Graphite Technology manufactures a wide range of equipment with a wide range of graphite materials for all chemical processes industries.

Heat exchangers, column, reactors, piping & fittings, fuel cells,...adapted to pressure, highest corrosion and wide temperature range up to 1500°C (2730°F).

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