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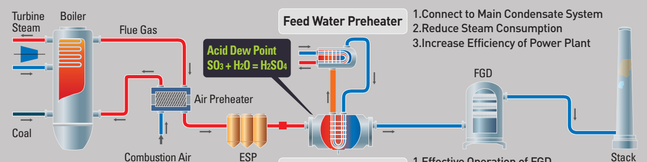
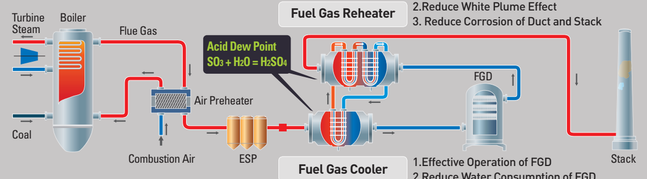
Flow process of Flue Gas Heat Recovery System

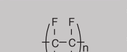
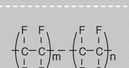
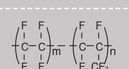
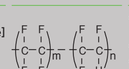
Case. 1 for Plant Efficiency



Case. 2 for Environment



THE KIND OF FLUORO RESIN | 불소수지의 종류

Type 종류	Structure Fomular 구조식	Characteristic 특징	Melting Point (˚C) 용점	Continuedly Workable Temp.(˚C) / 연속사용 온도
Teflon PTFE [Tetrafluoro Ethylene] **테프론 PTFE** [테트라플로로 에틸렌 수지]		• Topmost temperature among fluoro Resin • Porous film formation • 불소수지 중에서 사용 온도가 가장 높음 • 다공성 필름 형성	327	260
Teflon PFA [Perfluoroalkoxy] **테프론 PFA** [퍼플로로 알콕시 수지]		• High workable temperature • Non perforated film formation • Higher durability than PTFE, FEP • 사용온도 높음 • 무공성 필름 형성 • PTFE, FEP에 비해 내구성 우수	300 ~ 310	260
Teflon FEP [Fluorine-Ethylene] **테프론 FEP** [불소화 에틸렌 수지]		• Non perforated film formation • Cheaper than PFA • 무공성 필름 형성 • PFA에 비해 저렴	250 ~ 270	200
Tefzel PFA [Ethylene-Tetrafluoroethylene] **테프젤 ETFE** [에틸렌 테트라 플로로 에틸렌 수지]		• Tomost strength among fluororesin • Low workable temperature • 불소수지 중 강도가 가장 높음 • 사용온도가 낮음	270	150

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Our company endeavor ceaselessly
to develop new products
and quality improvement

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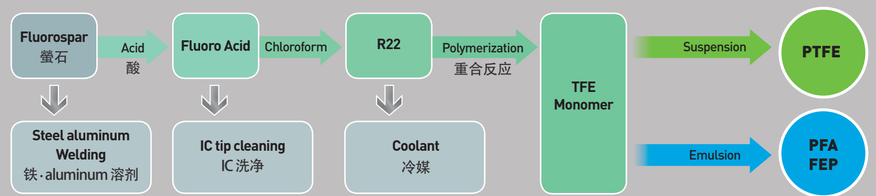
GGH Cooler & GGH Reheater
for Power Plant

Picture
for GGH Heater & GGH Cooler

Fluoroplastic Process(TEFLON)
불소수지 제조공정



List of Certificates

ASME American Society of Mechanical Engineers, USA (PP, S, U, U2)
NATIONAL BOARD The National Board of Boiler & Pressure Vessel Inspectors(PP, S, U, U2)
SELO Manufacture License of Special Equipment People's Republic of China
ANSI American National Standard Institute, USA
TEMA Tubular Exchanger Manufacturers Association, USA
DIN Deutsche Industrie Normen, GERMANY
JIS Japanese Industrial Standard, JAPAN
KS Korean Industrial Standard, KOREA
NEP Certificate of New Excellent Product, KOREA
KEPIC Korea Electric Power Industry Code, KOREA

1. Function of Gas Cooler & Gas Heater
1) Installed in front of the Desulfurization equipment absorber tower, cooling to gas for desulfurization process required temperature
2) Recovered heat from the gas cooler, after desulfurization, when the emissions at the gas for heating the gas to prevent white plume
3) Used to recover waste heat from flue gas

2.The using troubles of the heat exchanger for flue gas
1) Sulfurous acid gas in the flue gas causing corrosion of the heat exchanger tube
2) After reacting sulfuric acid with the metal tubes, Fe, Zn and Mg in tubes are eluted so that tubes get dissolution
3) Corrosion-resistant materials coating is used to prevent corrosion but corrosion-resistant performance is limited in

3.Characteristics of fluorine resin heat exchanger for flue gas
1) Technical Aspects
A. Ensure corrosion resistance for flue gas
B. The use of fluorine resin tubes cause troubleshooting the durability of coated tubes
C. Double expanding structure get the pressure resistance

2) Economically Aspects
A. Energy savings through heat recovery of flue gas
B. The price competitiveness against imports
C. Fast delivery and prompt A/S

1. 가스 Cooler / Heater의 기능
1) 탈황설비의 흡수탑 전단에 설치되어 탈황공정에 필요한 온도로 가스를 냉각시킴
2) 가스냉각기에서 회수한 열은 탈황 후 가스의 대기 배출 시 백연 방지를 위해 가스를 Heating하는데 사용
3) 배가스의 폐열을 회수하는데 사용

2.배가스용 열교환기의 사용상 개선점
1) 배가스내 아황산 가스가 열교환기 Tube의 부식
2) 금속 Tube가 황산과 반응하여 Tube내 Fe, Zn, Mg 등이 용출되어 Tube 손상
3) 부식을 방지하기 위하여 내식성 물질로 코팅을 하나 부식방지의 한계

3.동화엔텍 배가스용 불소수지 열교환기의 특징
1)기술적 측면
A. 배가스에 대한 내식성 확보
B. 불소수지 Tube의 사용으로 코팅 Tube의 내구성 문제 해결
C. 2중 확관 구조로 내압성 확보

2)경제적 측면
A. 배가스의 폐열회수로 에너지 절감
B. 수입품 대비 가격 경쟁력 확보
C. 빠른 납기와 신속한 A/S

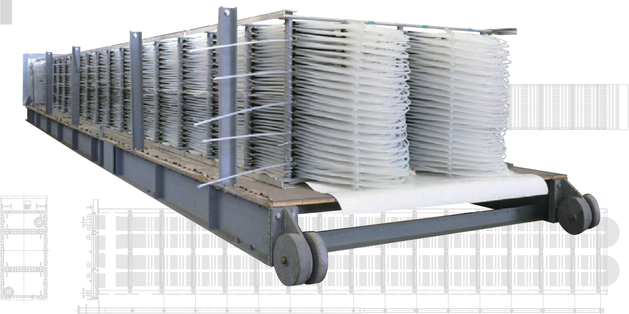
1. GAS COOLER/HEATER的功能
1) 安装在脱硫设备的吸收塔前端处，冷却至脱硫工程所需温度。
2) GAS COOLER所回收的热能用于加热脱硫后的气体，从而防止白烟排出。
3) 用于回收排GAS时所产生的废热

2.排GAS用热交换器在使用上的需改善点
1) 排气时含有的亚磺酸气体，对于热交换器的TUBE产生腐蚀
2) 金属TUBE于磺酸的化学反应产成物FE,ZN,MG等，导致TUBE受损
3) 虽然利用耐蚀性物质作为防腐蚀，但防腐效果有限。

3."东和恩泰"氟树脂热交换器的特性
1) 技术方面
A. 确保对于排出GAS的耐蚀性。
B. 利用氟树脂TUBE解决TUBE的耐久性。
C. 以双重胀管的结构来确保耐压性。

2) 经济方面
A. 回收排气中的废热能达到节能。
B. 进口产品对比确保价格优势。
C. 短交货期及迅速的售后服务。

TEFLON SOLID U-TUBE TYPE GGH COOLER



TEFLON COATED S.S TUBE TYPE GGH COOLER