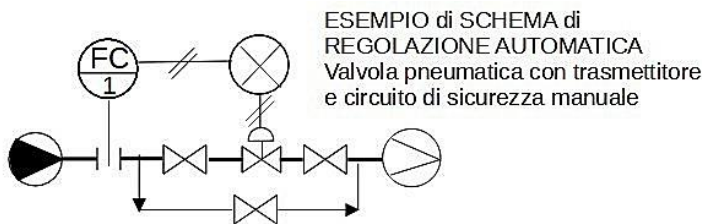
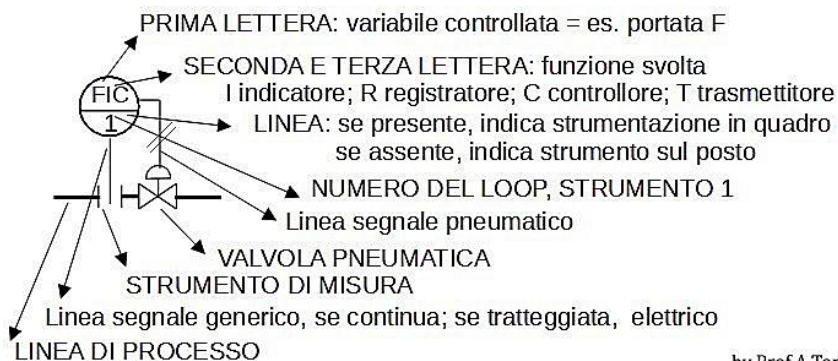


LABORATORIO TECNOLOGIE CHIMICHE 4 ITI CHIMICA - SCHEMI DI DISEGNO

ottenuti con "libreoffice draw" - a cura del Prof.A.Tonini - www.andytonini.com
 [=> i disegni come files .jpg sono presenti nel CD 4CHIMICA ITI da ottobre '22]



SIMBOLOGIA DI STRUMENTAZIONE DI CONTROLLO AUTOMATICO:



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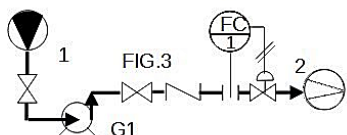
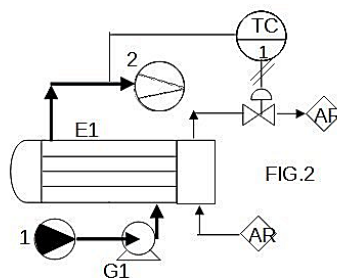
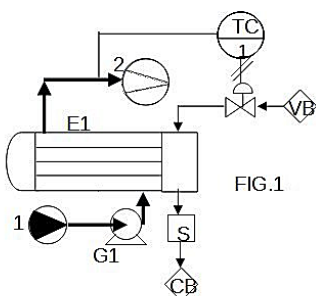
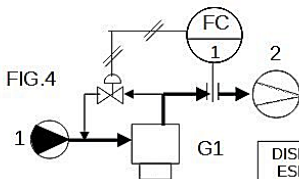
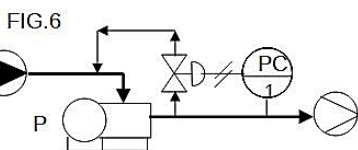
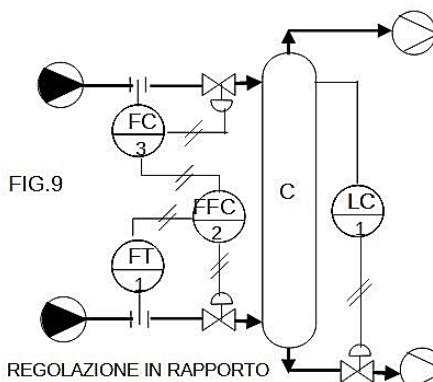
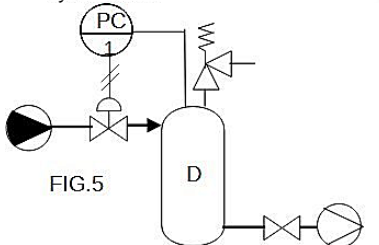


FIG.5

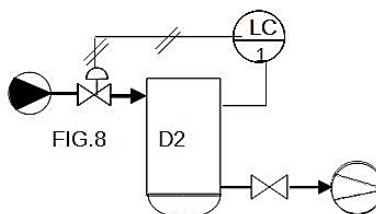
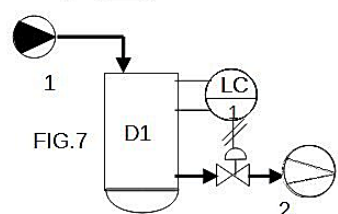


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DISEGNO DI SCHEMI DI CONTROLLO AUTOMATICO
 ESEMPI TC / FC / LC / PC / E IN RAPPORTO



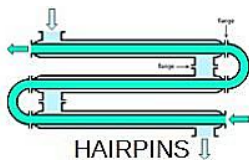
REGOLAZIONE IN RAPPORTO



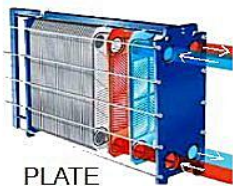
by Prof.A.Tonini

APPARECCHIATURE DI SCAMBIO TERMICO - 1

1



HAIRPINS



PLATE



AIR

FIG. 4/5

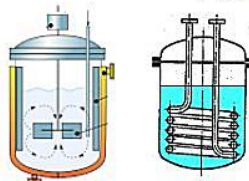


FIG. 1

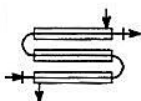


FIG. 2

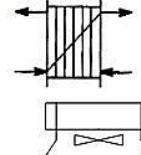
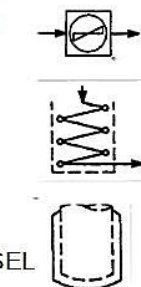
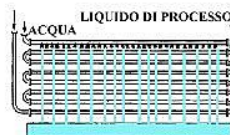


FIG. 3

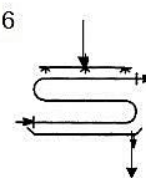


VESEL



RAIN COOLER

FIG. 6

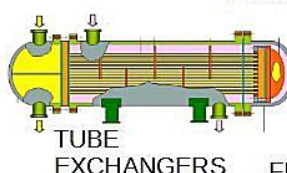


SPIRAL COOLER

FIG. 7



FIG. 8



TUBE EXCHANGERS

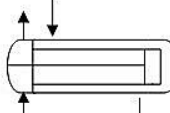
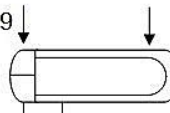


FIG. 9



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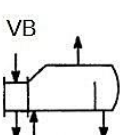
APPARECCHIATURE DI SCAMBIO TERMICO - 2

2



KETTLE BOILER

FIG. 10

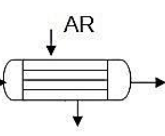


VB



CONDENSERS

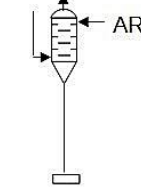
FIG. 11



AR



FIG. 12

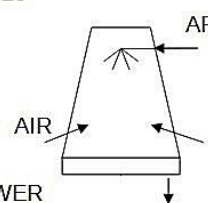


AR



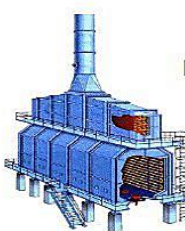
COOLING TOWER

FIG. 13



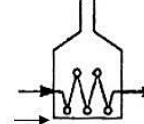
AIR

AR



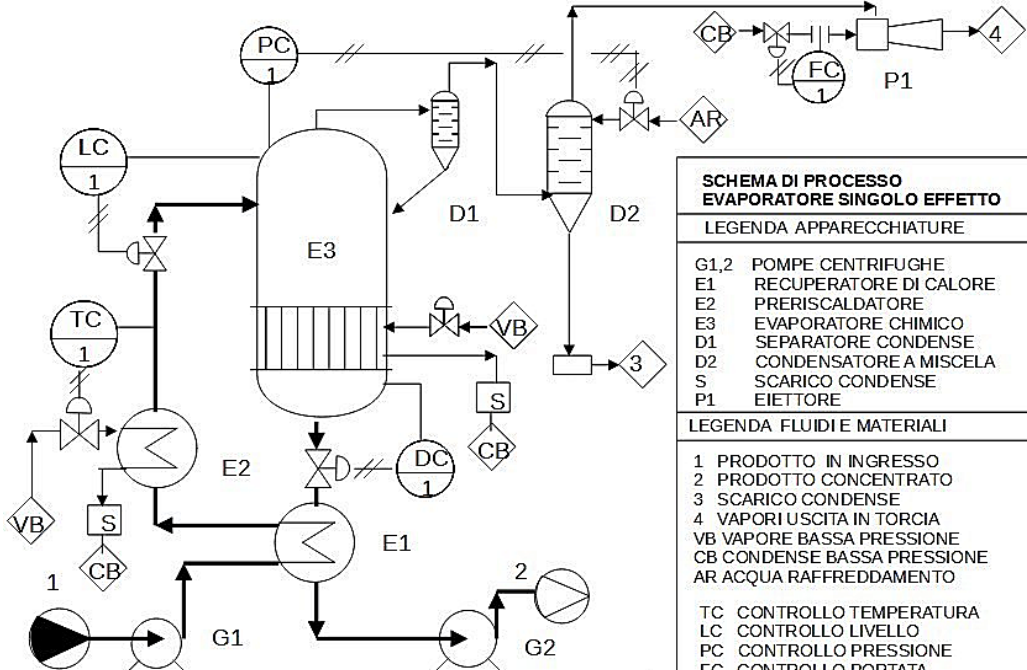
INDUSTRIAL BURNERS

FIG. 14



=> DA FARE:
DESCRIZIONI E APPLICAZIONI
SIMBOLI UNICHIM

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SCHEMA DI PROCESSO
EVAPORATORE SINGOLO EFFETTO

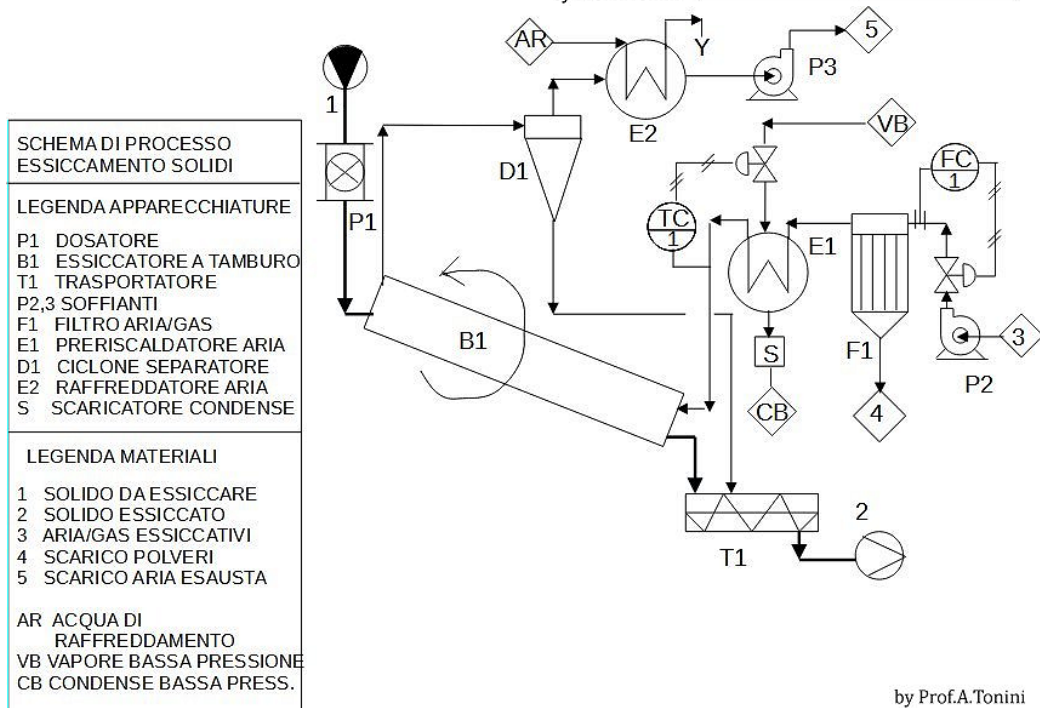
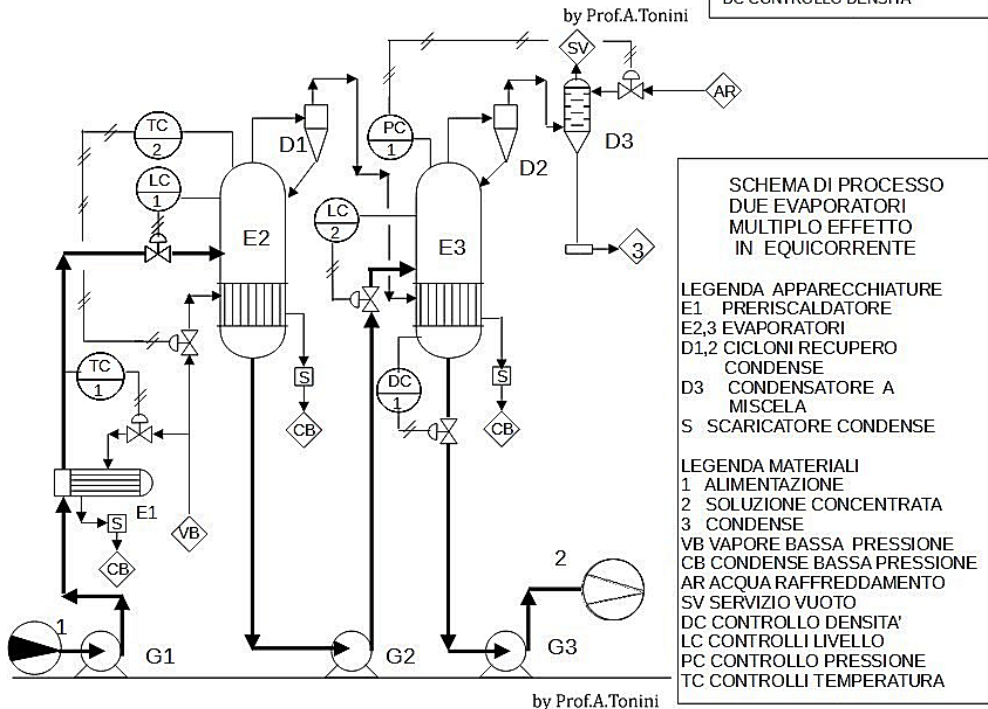
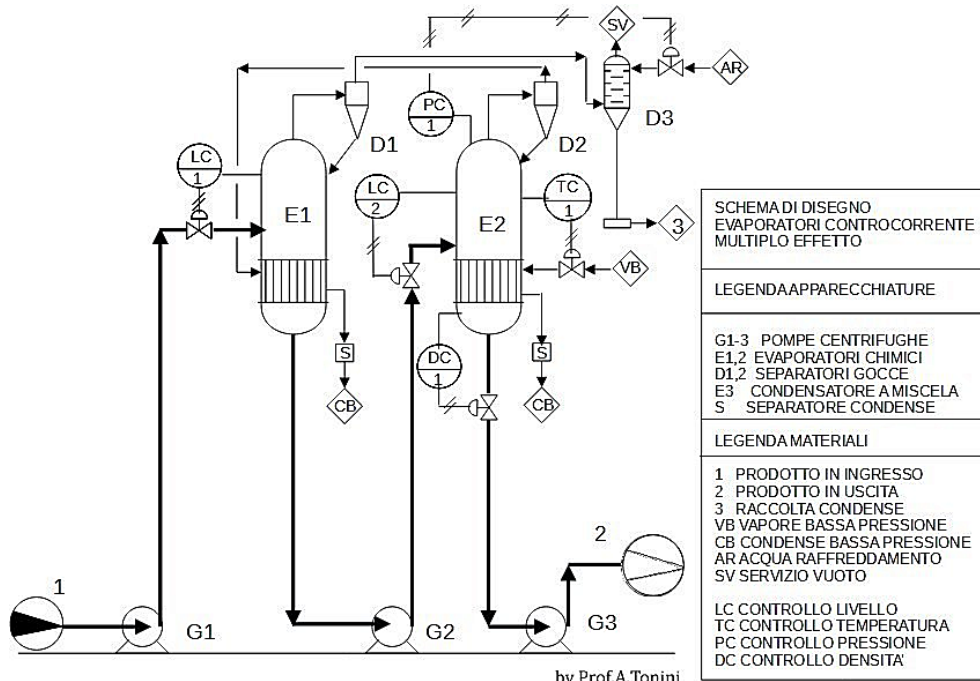
LEGENDA APPARECCHIATURE

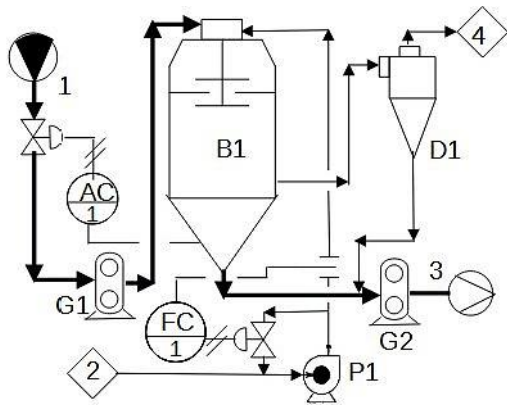
- G1,2 POMPE CENTRIFUGHE
- E1 RECUPERATORE DI CALORE
- E2 PRERISCALDATORE
- E3 EVAPORATORE CHIMICO
- D1 SEPARATORE CONDENSE
- D2 CONDENSATORE A MISCELA
- S SCARICO CONDENSE
- P1 EIETTORE

LEGENDA FLUIDI E MATERIALI

- 1 PRODOTTO IN INGRESSO
- 2 PRODOTTO CONCENTRATO
- 3 SCARICO CONDENSE
- 4 VAPORI USCITA IN TORCIA
- VB VAPORE BASSA PRESSIONE
- CB CONDENSE BASSA PRESSIONE
- AR ACQUA RAFFREDDAMENTO
- TC CONTROLLO TEMPERATURA
- LC CONTROLLO LIVELLO
- PC CONTROLLO PRESSIONE
- FC CONTROLLO PORTATA
- DC CONTROLLO DENSITA'

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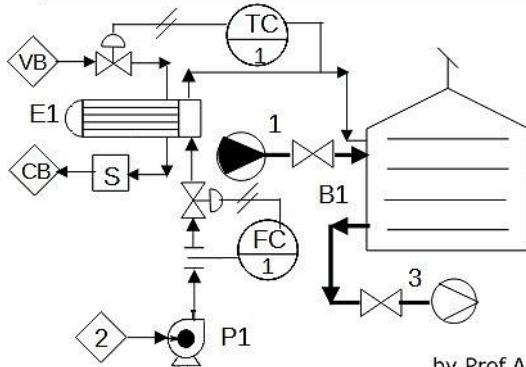




SCHEMA DI PROCESSO ESSICCATORE SPRAY ROTATIVO

LEGENDA APPARECCHIATURE
 G1,2 POMPE ROTATIVE
 P1 SOFFIANTE
 B1 ESSICCATORE SPRAY
 D1 CICLONE SEPARATORE

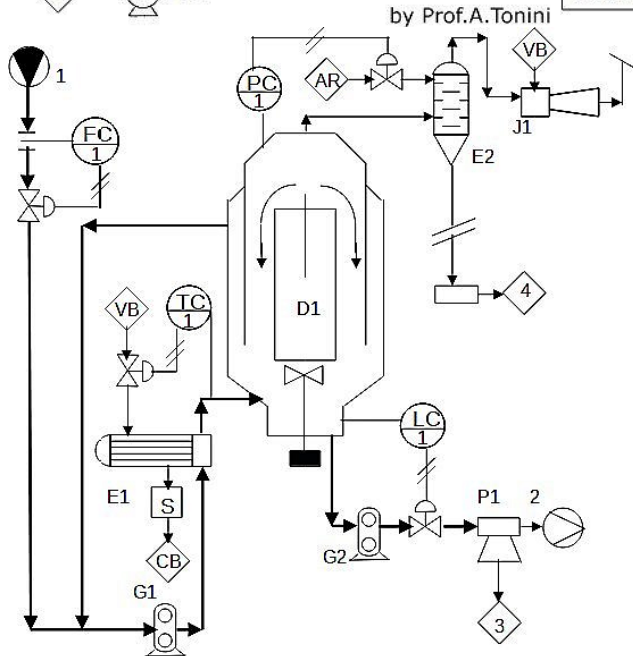
LEGENDA MATERIALI
 1 SOLIDO IN INGRESSO
 2 ARIA CALDA ESSICCATIVA
 3 SOLIDO ESSICCATO
 4 USCITA GAS ESAUSTI



SCHEMA DI PROCESSO ESSICCATORE AD ARMADIO

LEGENDA APPARECCHIATURE
 P1 SOFFIANTE
 E1 PRERISCALDATORE
 B1 ESSICCATORE AD ARMADIO
 S SCARICO CONDENSE

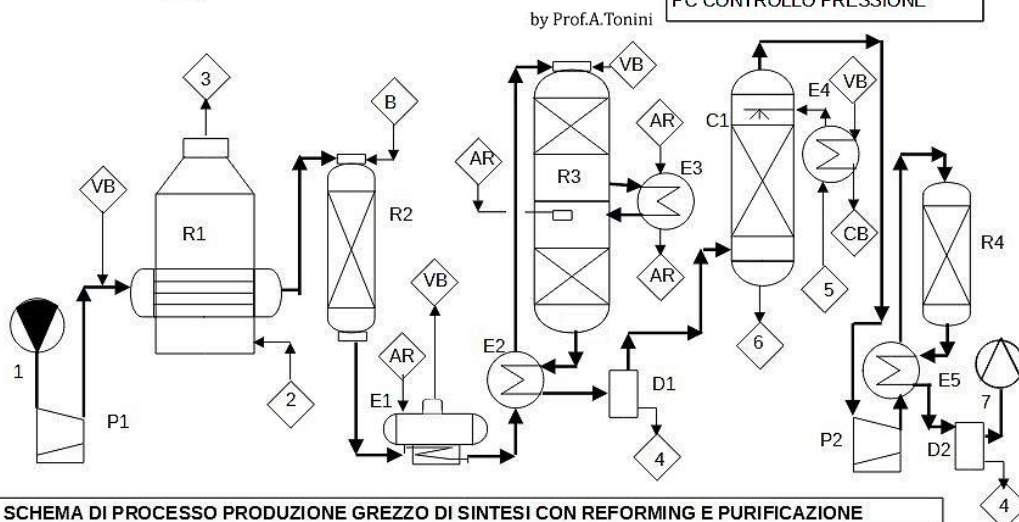
LEGENDA MATERIALI
 1 MATERIALE SOLIDO IN INGRESSO
 2 ARIA ESSICCANTE
 3 MATERIALE SOLIDO IN USCITA
 VB VAPORE BASSA PRESSIONE
 CB CONDENSE BASSA PRESSIONE



SCHEMA DI PROCESSO CRISTALLIZZATORE A TURBOLENZA PER EVAPORAZIONE DTB

LEGENDA APPARECCHIATURE
 E1 RISCALDATORE
 G1,2 POMPE ROTATIVE
 D1 CRISTALLIZZATORE
 P1 CENTRIFUGA
 E2 CONDENSATORE A MISCELA
 J1 EIETTORE
 S SCARICO CONDENSE

LEGENDA MATERIALI
 1 ALIMENTAZIONE
 2 CRISTALLI
 3 SOLUZIONE SATURA
 4 CONDENSE
 VB VAPORE BASSA PRESSIONE
 CB CONDENSE BASSA PRESSIONE
 AR ACQUA DI RAFFREDDAMENTO
 TC CONTROLLO TEMPERATURA
 FC CONTROLLO PORTATA
 LC CONTROLLO LIVELLO
 PC CONTROLLO PRESSIONE

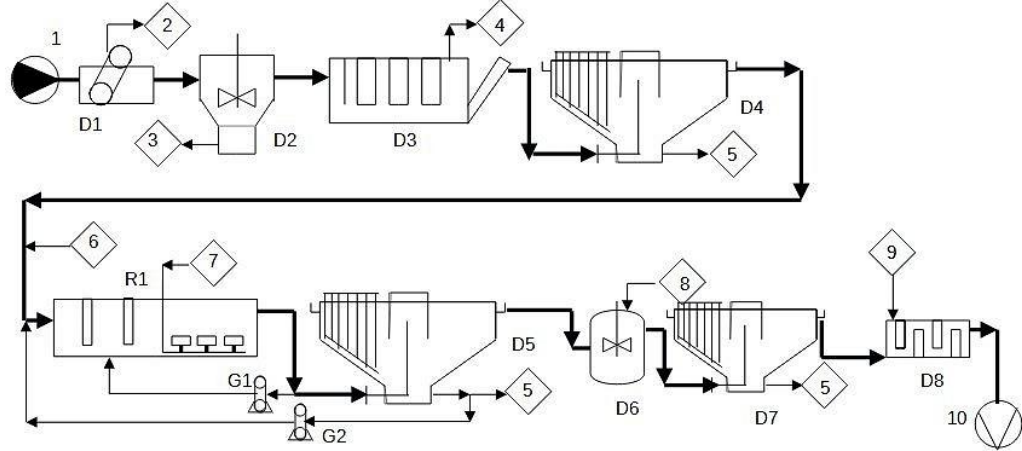
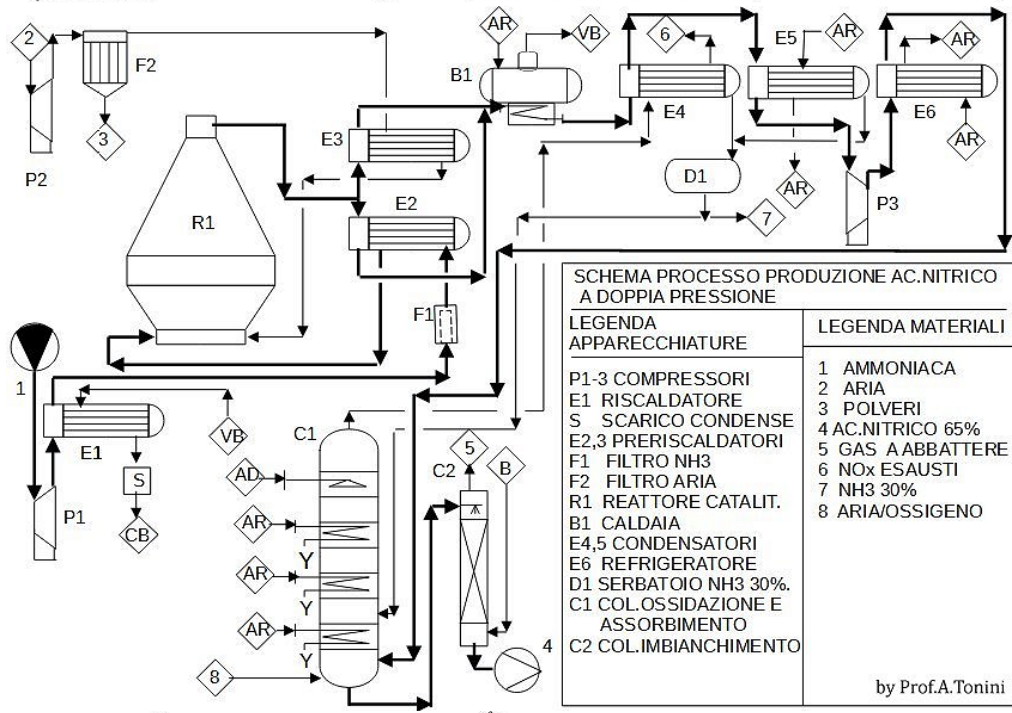
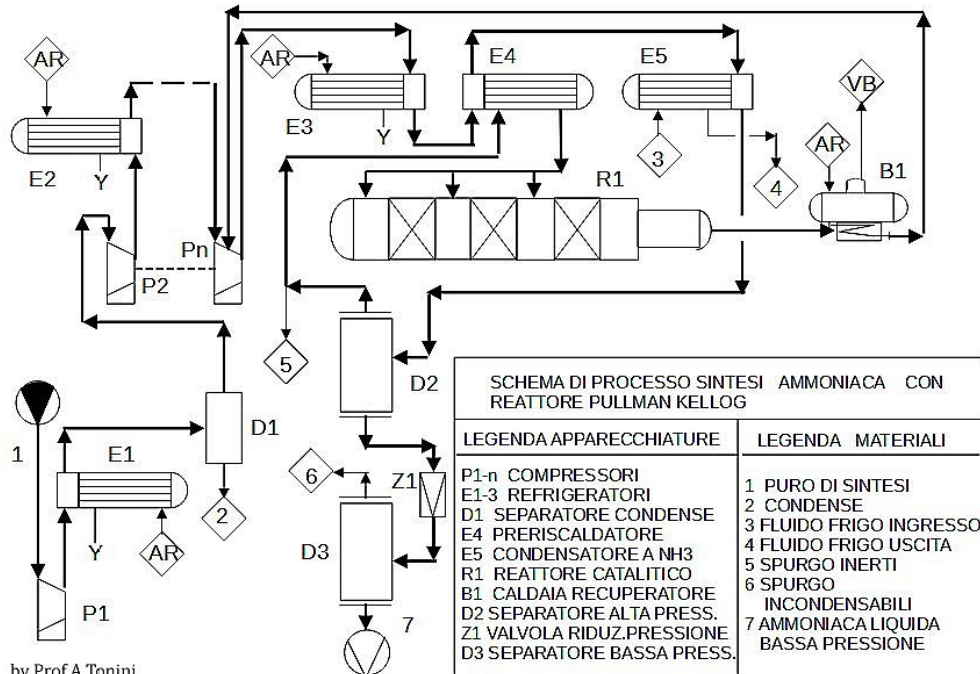


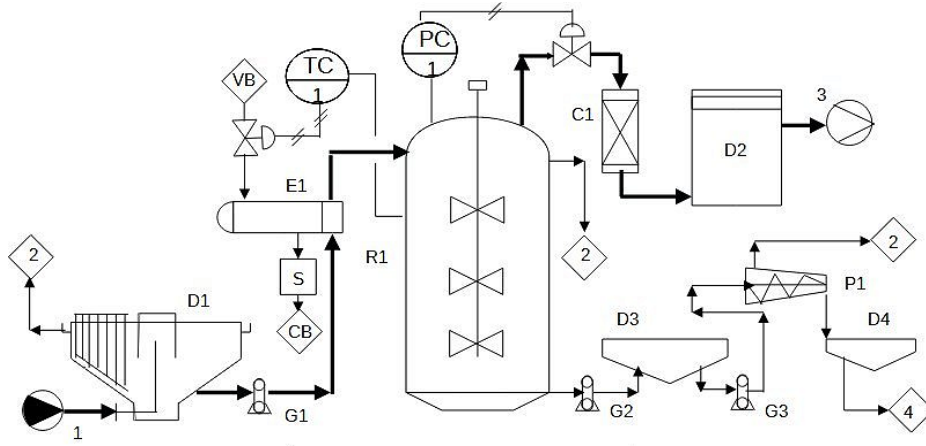
SCHEMA DI PROCESSO PRODUZIONE GREZZO DI SINTESI CON REFORMING E PURIFICAZIONE

LEGENDA APPARECCHIATURE
 P1,2 COMPRESSORI CENTRIFUGHI
 R1-4 REATTORI CATALITICI
 E1 CALDAIA RECUPERO EN.
 E2,5 SCAMBIATORI RECUPERATORI
 E3 SCAMBIATORE RAFFREDDATORE
 E4 SCAMBIATORE RISCALDATORE
 C1 COLONNA ASSORBIMENTO
 D1,2 SEPARATORI CONDENSE

LEGENDA MATERIALI
 1 GAS NATURALE
 2 GAS COMBUSTIBILE
 3 SCARICO FUMI
 4 CONDENSE
 5 SOLUZIONE ALCALINA
 6 SCARICO SOLUZIONE
 7 GAS PURO DI SINTESI
 AR ACQUA RAFFREDDAMENTO
 VB VAPORE BASSA PRESSIONE
 CB CONDENSE BASSA P.

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LEGENDA APPARECCHIATURE

D1 ISPESITTORE
 E1 PRERISCALDATORE
 R1 DIGESTORE ANAEROBICO
 C1 FILTRO BIOGAS
 D2 SERBATOIO BIOGAS
 D3 ACCUMULATORE FANGHI
 P1 CENTRIFUGA FANGHI
 D4 SERBATOIO RACCOLTA

S SEPARATORE CONDENSE

LEGENDA MATERIALI

1 FANGHI IN INGRESSO
 2 ACQUE DA DEPURARE
 3 BIOGAS
 4 FANGHI A SMALTIMENTO
 VB VAPORE BASSA PRESSIONE
 CB CONDENSE BASSA PRESSIONE

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