Soaker Visbreaking

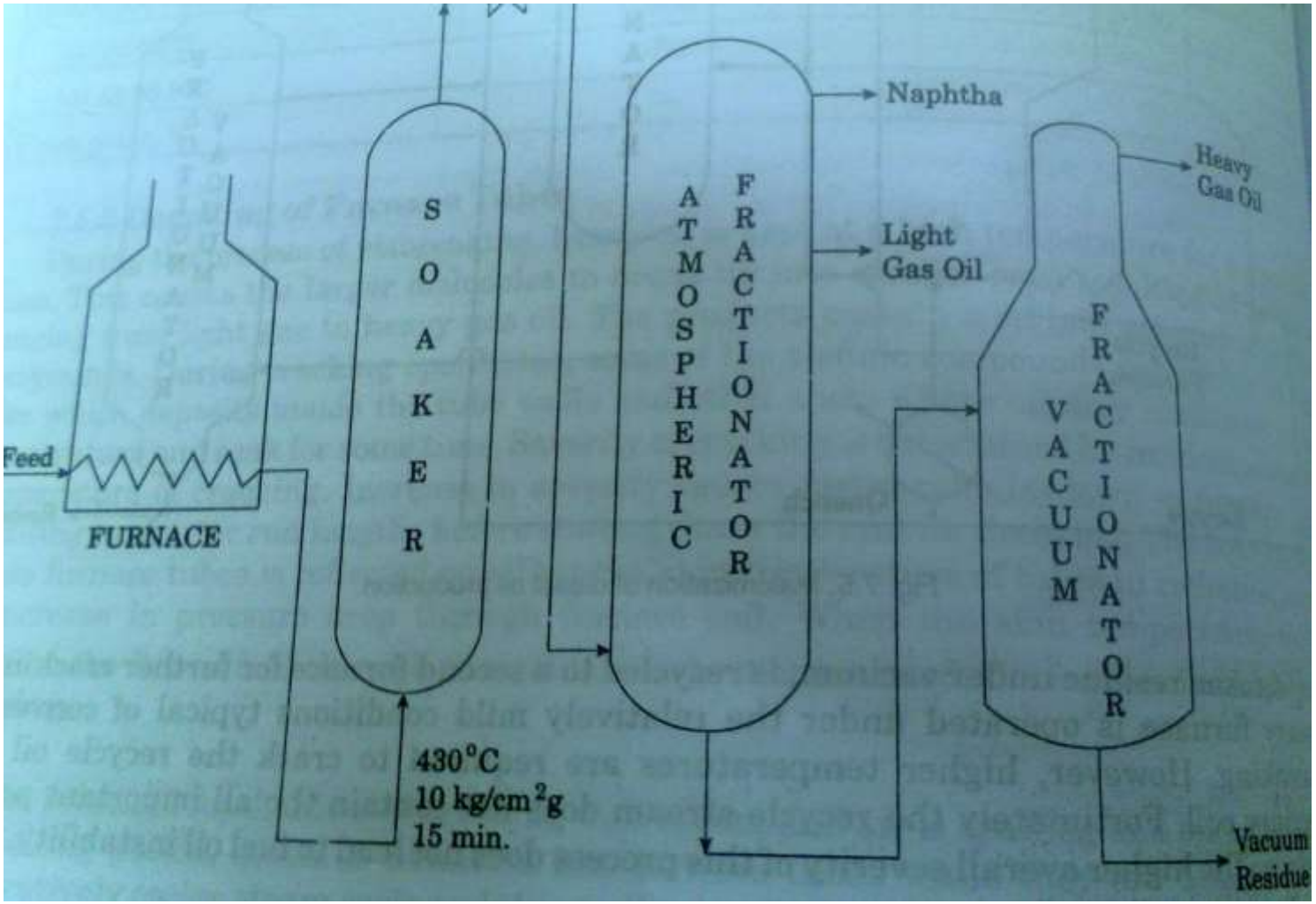
SOAKER VISBREAKING

- The Shell Soaker visbreaking process is ideally suited for the reduction of heavy fuel oil product via residue viscosity reduction and maximum production of distillate
- Typical applications include processing of atmospheric residue, vacuum residue or solvent Deasphalter pitch
- In soaker visbreaking, the bulk of the cracking reaction occurs not in the furnace but in a drum located after the furnace called the soaker drum

Two types of soaker visbreaking

- Conventional soaker visbreaking
- High conversion soaker visbreaking

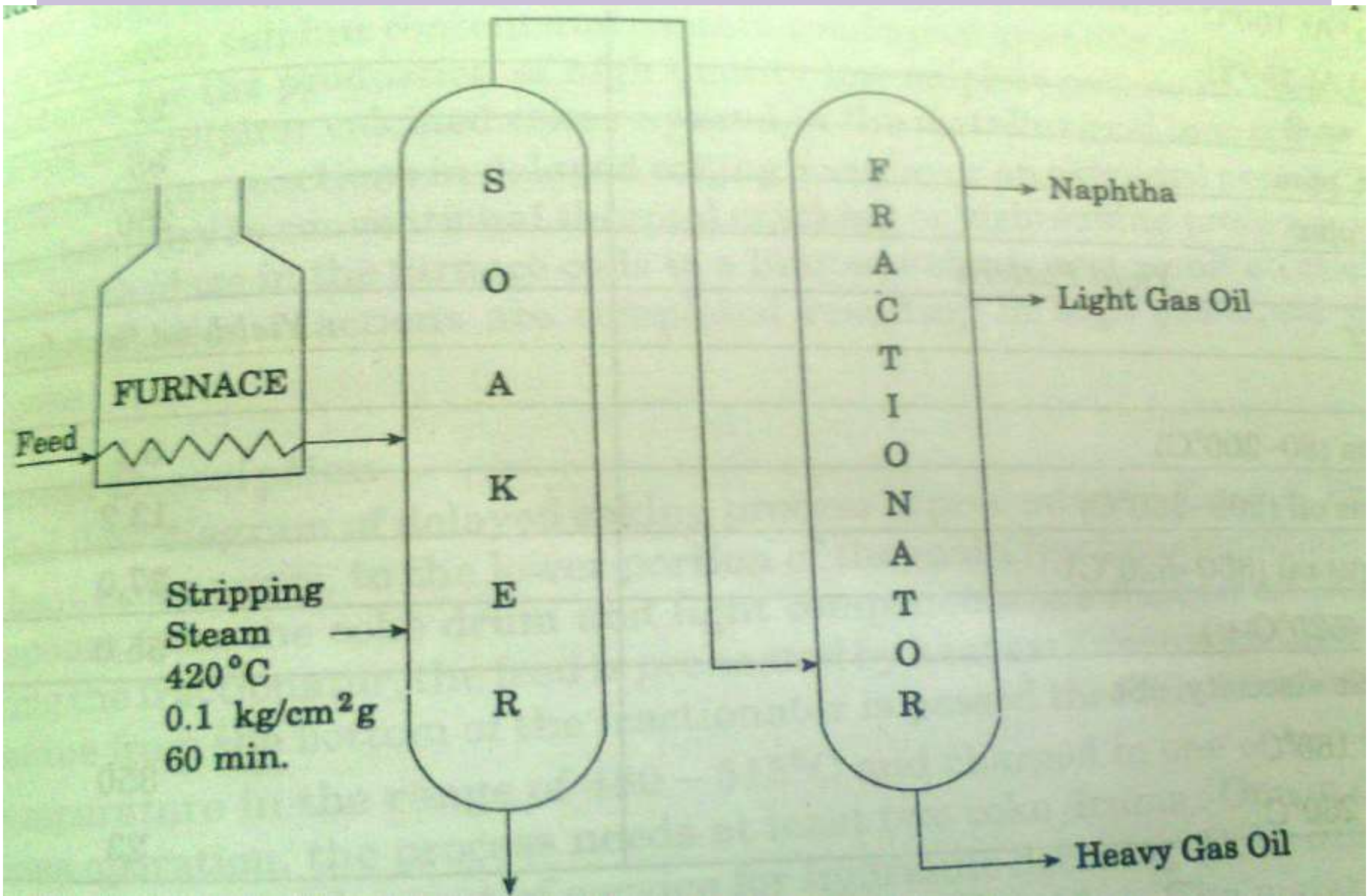
Conventional soaker visbreaking



Conventional soaker visbreaking

- Soaker drum is added between furnace and fractionator
- Soaker drum is a large vessel designed to allow for along residence time for feedstock
- The cracking reaction take place in the soaker drum
- The addition of soaker drum downstream increases residence time in order to improve conversion at lower furnace outlet temperature

High conversion soaker visbreaking



High conversion soaker visbreaking

- This process features higher conversion and more stable residue
- Heavy feedstock including heavy crude oil,oil shale,long and short residues as well as visbroken residues having high sulphur content and heavy metals are acceptable to this process

Comparison of old & new soakers

item	old	new
Flow direction	down	up
Size	100	50
Diameter ,m	3	2
Temperature	480	440
Pressure, bar	25	5---15
Vapour cracking	yes	minimum
Liquid cracking	minimum	yes
Backmixing	moderate	little
Run length, day	50	300

Advantage of soaker visbreaking

- Lower capital expenditure
- Smaller furnace
- Less waste heat recovery equipment
- Lower pressure drop through the furnace
- Lower fuel consumption

Thanks