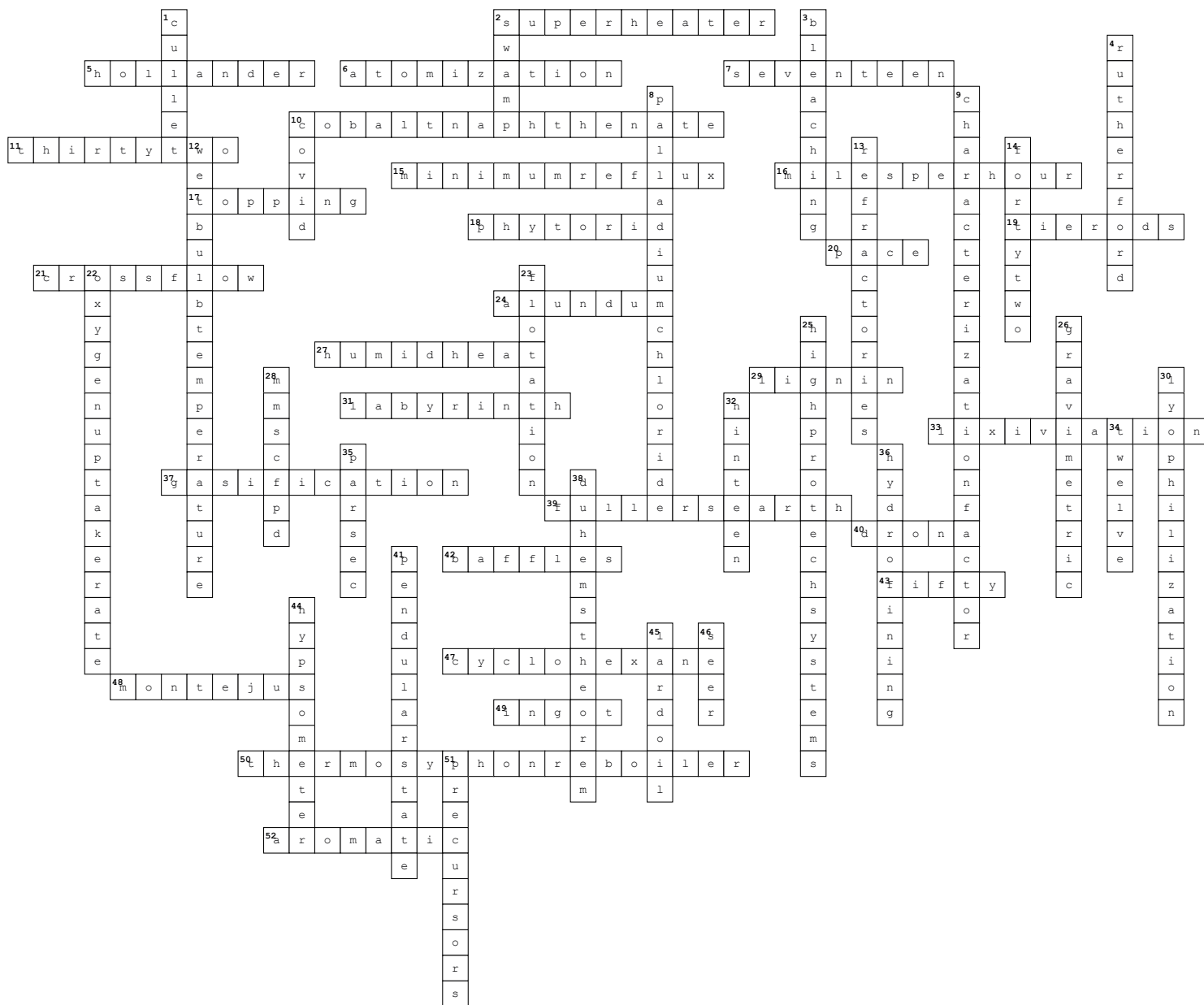


# Chem-E-Cross: March 2021



## Across

- This equipment heats a vapor above the saturation temperature
- This particular beater used during the paper pulp manufacturing process does not facilitate the strengthening of fibre
- Ratio of weber number and reynolds number is equal to {Hint: This ratio is equal to the Ohnesorge number. Find the characteristic related to this ratio. For example the character related to weber number is compressible flow}
- Let the entropy generated on mixing 1 kg of steam at 1 bar and 473 K (state 1) with 1 kg of steam at 1

## Down

- This is crushed glass from imperfect articles, trim and other waste glass. It facilitates melting and utilizes waste material.
- Methane produced by the decay of vegetable matter was early identified as combustion of ..... Gas
- The first patent connected with an industrial use of chlorine is dated 1799 and used for .....
- Disintegration/second multiplied by 1 Mega gives the unit .....
- Acetaldehyde manufactured by the Wacker process

- bar and 573 K (state 2) be X J/K. Write X in words. {Example : If answer is 22 enter as twentytwo}
10. Benzoic acid is synthesized by liquid phase toluene oxidation over a ..... catalyst with air as oxidizing agent {Hint: Consists of metal cobalt}
  11. The constant-pressure heat capacity of liquid water at 25°C at 1 bar is 4.18 J/(g.K). Let the heat capacity of liquid water at 25°C at 100 bar in be X J/(g.K) rounded to nearest integer. Write 8\*X in words. {Example : If answer is 22 enter as twentytwo}
  15. This is defined as that ratio which if decreased by an infinitesimal amount would require an infinite number of stages to accomplish a specified separation between two components
  16. 1.6092 times the kmph is equal to ..... [write full form not the acronym].
  17. Removal of the more highly volatile constituents, leaving "reduced crude" as a residue is known as .....
  18. The recent technology developed by CSIR-NEERI which treats water in the natural methods [trees like canna] and the treated could be utilised for various purposes including drinking.
  19. These are used to hold the baffles in place with spacers, which are pieces of tubing or pipe placed on the rods to locate the baffles in a shell and tube heat exchanger
  20. 7.62 decimeter equals to one .....
  21. Maximum plate efficiency is achieved in case of ..... flow. {Answer Format : xxxxflow}
  24. The raw material for fused aluminium oxide abrasives sold under the trade name .....
  27. It is defined as the heat capacity of 1 lb of dry air and the moisture it contains
  29. An organic substance found in the woody parts of plants and is associated with cellulose
  31. This is a type of seal which consists of a series of circumferential strips of metal extending from the shaft or from the bore of the shaft housing to form a cascade of annular orifices.
  33. The process of separating mixtures by dissolving soluble constituents in water or any other solvent.
  37. When steam is passed over coal resulting in the endothermic reaction, it is represented by  $C + H_2O > CO + H_2$ . This process is called ..... of coal
  39. Catalytic desulphurisation process used for sweetening of straight run gasoline and kerosene uses .... as catalyst
- uses ..... as catalyst
9. The ratio of cubic root of the molal average boiling point ( $T_b$ , in Rankine) of oil to its specific gravity(s) at 15.5°C
  10. Obsolete Indian traditional unit of length (Indian, Bombay) used before 1920 (meter multiplied by 0.3429) {Hint : This Unit is also equal to 2 span, 6 Moot, 12 Tassoos, 24 Unglee, 72 Jow/Jaob, 0.5 Guz, 0.25 Danda, 0.05 Niranga, 0.00025 Coss}
  12. The dynamic equilibrium temperature attained by a water surface when the rate of heat transfer to the surface by convection equals the rate of mass transfer away from the surface
  13. .... embrace those materials used to withstand the effect of thermal, chemical, and physical effects met with in furnace procedures
  14. One barrel is equal to \*\* gallons. (referred in context of crude oil) [enter \*\* in words]. {Example : If answer is 22 enter as twentytwo}
  22. Expand OUR in the context of biochemical engineering
  23. This process is used also by International Minerals and Chemical Corp. in the refining of sylvinites to produce potassium chloride
  25. HYSYS (expand the acronym) Hint : {It is used in the context of simulation and modelling}. [Correction: HY stands for hy in actual context for this clue hy=high rest remains same]. {Hint: Actual Answer : hy\*\*\*\*\*sys\*\*\*\* ; Answer you need to enter : high\*\*\*\*\*sys\*\*\*\* }
  26. In this method a known quantity of gas is passed over a moisture-absorbing chemical such as phosphorus pentoxide, and the increase in weight is determined. Name the method?
  28. Millions of standard cubic feet per day-- find the acronym of the given abbreviated version
  30. The removal of moisture from a material such as a biological substance in which the properties are preserved by freezing under vacuum
  32. 20.0394 inch of water @ 39.1 fahrenheit is equal to \*\* torr. [enter \*\* in words]. {Example : If answer is 22 enter as twentytwo}
  34. Ratio of cubic feet to board feet. [enter answer in words]. {Example : If answer is 22 enter as twentytwo}
  35. 30.8374 peta meters is equal to one ..... {Hint: Used to measure distance between astronomical objects}
  36. This is the most recent and effective method for the removal of sulphur in the petrochemical industries.

40. 16 prasthas are equal to one ..... (Hint : Indian Units)
42. In a agitated vessel these are used to suppress vortex formation
43. A Circular disc of diameter 80 cm is immersed vertically in lake whose specific gravity is 1.254 and the disc just touches the surface of lake. Find the depth of the centre of pressure. Write answer in words. {Example : If answer is 22 enter as twentytwo}
47. Caprolactum , adipic acid and HMDA (hexa methylene dia amine) are all made from a common compound.....
48. An egg-shaped closed tank used to transport a liquid or slurry by using compressed air. {generally the word is expressed as xxxxx-xxx}
49. A material that has been cast in moulds into a particular shape such as a bar or ablock.
50. This equipment facilitates natural circulation of the boiling medium by maintaining sufficient liquid head to provide for circulation
52. Aniline point of diesel is a measure of its.....content
38. For any closed system formed initially from given masses of prescribed chemical species, the equilibrium state is completely determined by any two properties of the system, provided only that the two properties are independently variable at the equilibrium state. Which theorem states this?
41. The state of a liquid in which a porous solid when a continuous film of liquid no longer exists around and between discrete particles so that flow by capillary cannot occur
44. An instrument used to determine elevation above sea level by measuring the change in the boiling point of water.
45. These are the most important animal fats and are produced by the rendering of hog fat
46. Obsolete unit of volume used in Northern India and larger parts of Asia to measure the capacity of dry products. It is equal to a little more than a litre. {It is a doublee sounded word}
51. These are the reactive materials usually made by breaking down larger molecules called feedstocks. {In context of Petrochemicals}. {This term also majorly used in biochemistry -the preceding compound in a metabolic pathway}. {This a general term not a particular material}