

Textile Chemistry Ist minor test 12th Sept 2017

Energy conservation in wet Processing VII Semester 2017

Q.No. 1 Calculate the quantity of water required in dyeing 100 kg cotton fabric on jigger dyeing machine(M:L Ratio 1:3)

Answer

(1) Wet loading of fabric on Jigger m/c	100 liter
(2) jigger filling with water	300 liter
(3) Washing and soaping	600 liter
(4) Dye addition	300 liter
(5) Over flow wash	1500 liter
(6) dye fixing agent treatment	300 liter
(7) Soaping treatment	600 liter
(8) Neutralization treatment	600 liter
Total water consumed	4300 liter

Q.No.2 Discuss about the low M;L ration machine used in Textile Chemical Processing

Answer – Following are low M;L ratio machine used in textile chemical processing

- (1) Jigger machine M:L ratio 1:3 for dyeing of cotton and blended fabrics
- (2) Padding mangle M;L ratio 1:0.70 for padding of cotton and blended fabric in dyeing and finishing
- (3) Jet dyeing machine M;L ratio 1;1 to 1;2 for dyeing of polyester fabrics .
- (4) Weight reduction machine M;L ratio 1;1 to 1;2 for weight reduction of polyester fabrics .

Textile Chemistry IInd minor test 26<sup>th</sup> Oct. 2017

Energy conservation in wet Processing VII Semester 2017

Q.No. 1 Write the quality parameter of steam used in textile chemical processing

Answer Steam is produced in three qualities, having following parameters,

- (a) Dry Steam – this steam is used in textile chemical processing the energy content is given by the equation  $H = h + L$
- (b) Wet steam – this steam is used in textile chemical processing the energy content is given by the equation  $H = h + XL$  where  $X$  is dryness fraction
- (c) Superheated Steam – this steam is generally not used in textile chemical processing except in textile printing the energy content is given by the equation  $H = h + L + 0.46 (T_{sup} - T_s)$

Q.No. 2 Calculate the quantity of energy required in converting 1 kg water in steam

Answer Energy required to raised the temperature of water to 100 C

- (1)  $M S (T_2 - T_1)$  Kcal where  $M$  is the mass of water  $S$  is specific gravity and  $T$  is change in temperature
- (2) Heat required to convert water at 100 C into steam  
 $M X L$  kcal where  $M$  is mass and  $L$  is latent heat

Q.No.3 What are the different source of energy in Textile wet processing

Answer The different source of energy in the textile wet processing are (1) Steam energy produced in the boiler (2) Electrical energy out sourced (3) Solar energy in house production

Textile Chemistry Ist minor test 12th Sept 2017

Textile Chemical Analysis V Semester 2017

Q.No. 1 Define surface active agents and its application in textile chemical processing

Answer Surface active agents are long chain hydrocarbon molecules having cationic or anionic charge. they are water soluble. They are divided in three parts (a) cationic (b) anionic (c) nonionic . they reduce the surface tension of water . it has application in all chemical processing treatments e.g wetting agent , dispersing agent, leveling agent and water solubilizing agent. Auxiliaries are having application in pretreatments ,dyeing ,printing and finishing.

Q.No.2 Convert 200 cc N/10 HCL in g/l

Answer 
$$\text{Normality} = \frac{\text{No. of equivalents}}{\text{Volume in liters}}$$

$$1/10 = x/200/1000$$

Calculate x and convert into g/l

Q.No.3 How cationic surfactant are detected

Answer - Make standard 4 g/l of solution and take 10 ml in test tube and sodium carbonate so that solution became alkaline with pH 9-10. Add 2-3 drops of bromophenol blue indicator and 5 ml chloroform solution . A blue coloration of chloroform solution indicates cationic surfactant.

Textile Chemistry IInd minor test 26<sup>th</sup> Oct 2017

Textile Chemical Analysis V Semester 2017

Q.No. 1 write the method to test the silicone softeners

Answer - the active content silicone oil is measured by 1;4 dioxane and salt method. In salt method 20 ml silicone softner is taken in measuring cylinder. Add 20 ml of 30% common salt solution. the cylinder is kept constant for 2 hrs. after that three layers are formed. (a) water and 30% salt layer (b) emulsifier layer (c) silicone oil layer. The % of oil content will be the volume of silicone oil

Q.No. 2 Discuss the fastness properties

Answer –There are four major fastness properties (Light fastness ) (2) Washing fastness (3) Rubbing fastness (4) perspiration fastness

Light fastness – the resistance of color (shade ) of the fabric towards sun light its rating is, 1-8

Washing fastness- – the resistance of color (shade ) of the fabric towards detergents solution its rating is ,1-5.

Rubbing fastness - the resistance of color (shade ) of the fabric towards the dry and wet rubbing its rating is, 1-5.

Perspiration fastness - the resistance of color (shade ) of the fabric towards acidic and basic body perspiration , its rating is 1-5.

Q.No. Write the method to find out % purity of  $H_2O_2$

Answer – Prepare 10 gm/l standard sample solution (100, 50,10 volume). To 10 ml of this diluted solution we add 200 ml water and 30 ml (20 %)  $H_2SO_4$  solution. The mixture is titrated with N/10  $KMnO_4$  solution.

1 ml N/10  $KMnO_4$  = 0.001701 gm  $H_2O_2$