Read, Reflect and Learn - 009; Aug 2015

'Sizing of Mountboard'

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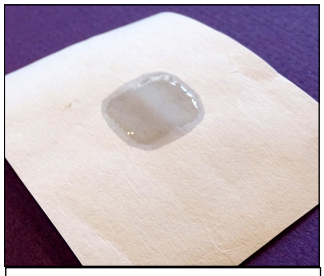
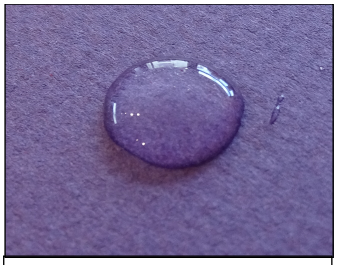
Sizing is a complex subject and sizing agents are an important group of chemicals added during the manufacture of paper and in our case mountboard. Sizing agents are used during paper manufacture to reduce a paper's tendency to absorb liquids. There are two methods of sizing; surface sizing and internal sizing, often termed 'Wet-End Sizing.' Internal sizing is added during manufacture to most papers in order to optimise paper quality, dimensional stability, reduced water absorption and improve abrasion resistance.



Blotting Paper



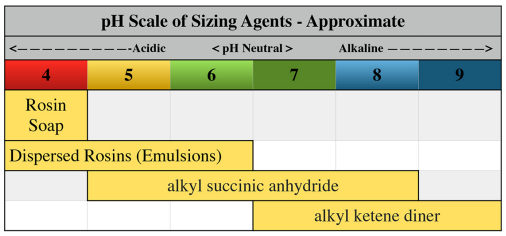
Mountboard

There are three sizing categories:

unsized(water leaf)- low water resistant - such as blotting paper.
weak sized(slack sized) - somewhat absorbent - newsprint etc.
strong sized(hard sized) - highest water resistance - mountboard etc.

Historically there have been various means of sizing paper including the use of additives such as starch and animal glue but more recently, in the 19th century, the use of rosin became popular. Rosin sizing agents are popular because they are relatively cheap to use however, it is possible that they may cause deterioration of the cellulose fibres due to their acidic nature.

Now modern sizing agents include the rosin emulsions, and synthetic emulsions such as alkyl ketene dimer (AKD), and alkyl succinic anhydride (ASA). However, because rosin can be classified as acidic in contrast to AKD and ASA that are considered as basic or neutral, it is naturally the latter sizing agents that predominate through the higher specification levels of mountboard sold today.



Of interest to framers, mountboard is internally sized the purpose being to prevent or restrict the ingress of moisture into the board by restricting the cellulose fibres tendency to absorb liquids; rather, any moisture would sit on the top of the board rather than being absorbed. FATG Mountboard Standards state that in Cotton Museum and Conservation boards the sizing agent should be neutral or alkaline only, whereas there is no specification in Standard mountboard.

Questions:

1. What is the purpose of adding sizing agents to mountboard.
2. Why is it a disadvantage to add Rosin based size to mountboard.
3. What are the two main synthetic sizing emulsions.
4. What do you understand as 'Wet-End Sizing.'
5. When sizing agents are added to mountboard are they added by surface or internal sizing methods. Explain your reasoning in no more than 30 words.
6. What sizing agent would you expect to be used for Cotton Museum or Conservation quality mount board.
7. What do you understand by 'Water Leaf Sizing.'
8. Explain, in under 50 words, what effect sizing has on mountboard.
9. When completing wash lines on mountboard one notices that the lines are rough and fuzzy; explain what might be the problem.
10. Off the two major causes of deterioration in paper etc. i.e. 'oxidation' and 'acid catalysed hydrolysis' - when using Rosin based emulsions which of these factors do you believe to be responsible. Explain you reasoning.