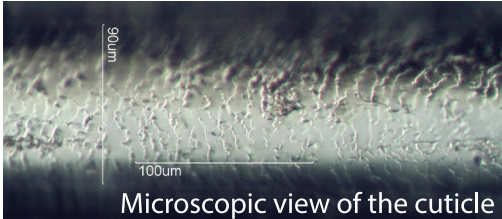
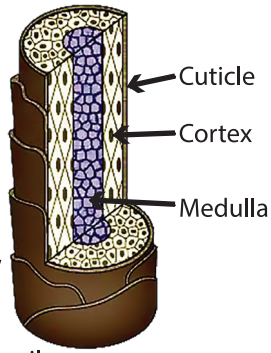


## Bow hair

Bow hair comes from horse tails. White hair is not bleached but actually comes from white horses. Bleaching damages the hair. The three main parts of the hair are the medulla, cortex, and cuticle. The cuticle is the surface of the bow hair that makes contact with the strings, and it is made of keratin which is a protein found in hair and nails.



There is a surface texture on the cuticle like fish scales. This surface texture is so fine that it makes no contribution to making friction on the string to vibrate by itself. However, it is just rough enough to scrape and raise the particles off of the rosin.

## Rosin

Rosin is like the fuel of the bow that makes your instrument sound by creating friction. It is the last touch of the whole ideal performance setup for your instrument, as different rosin can bring out different sound textures and tone colors from the instrument.

Rosin is made from the resin (sap) of various conifer trees, mainly pine trees. Resin is generally collected from a 'tapping' process. Color is not a significant factor to determine the characteristics of rosin. It means that dark rosin is not always softer and stickier than light rosin. The color of rosin can vary depending on not only different species of trees but also on the melting temperature and amount time heated in the making process. Some rosin makers put color pigments just to make the rosin look dark.



### Bow hair and Humidity

**Bow hair is more sensitive to the humidity than it is to the temperature.**

- In humid climates, the cortex of the hair absorbs the moisture and expands which quickly makes the hair lengthen. It not only makes it difficult to tighten the bow, but the strength of the hair weakens, and the decreased hair tension reduces the bow responsiveness. Rosining the bow becomes inefficient as well.
- In dry climates, the bow hair shrinks. In some extremely dry conditions, the hair gets too short to loosen the bow which can lead to damage such as tip breakage.

### Rosin and Temperature

**Humidity does not affect the rosin. However, temperature can affect the rosin and its usability.**

- Exposing the rosin to a hot climate condition or to direct sunlight for an extended period of time can melt the rosin particles on the rosin surface which makes the rosin too soft and too tacky to be applied to the hair. Also, these rosin particles on the bow hair can melt in some extreme conditions.
- While most rosins are ok in a cold temperature, some harder rosins can crack when a sudden temperature change occurs from cold to hot.

There is no magic rosin that revitalizes bow hair in unfavorable climate conditions. Accept Mother Nature. Here are some ways to cope.

#### When it is humid

- Rosining the already lengthened bow hair is not very effective. The cortex swollen by moisture will create pressure and lift the cuticle layer of the hair. Forcing to rosin in this hair condition can affect the life span of the hair negatively.
- **Rosin your bow hair before you expose it to a humid environment.**
- Do not force to tighten the bow after the hair has lengthened.

#### When it is dry

- The bow hair shrinks when it's dry. It is ok to use the bow unless it becomes too tight.
- To avoid damage from the bow getting too tight, keep the bow with a damp cloth, sponge or a humidifying device inside the case.

#### When it is hot

- Use a hard rosin. Hard rosin like SOLO or Signature Formula has a higher softening point and will withstand a high temperature longer.
- **Rosin your bow hair before you expose it to a high temperature environment.**
- Some softer rosins can become too soft and too tacky on the surface more quickly when it is warm. Do not apply rosin when the surface is too tacky. It is not good for the hair that has already been lengthened and weakened by high humidity.

#### Tips

- **Never scratch or sand the shiny surface of a new rosin.** This is not necessary if your bow hair is in good condition.
- There is no such a thing as "dustless" rosin. The rosin particles scraped off from the solid rosin by the bow hair cling to the bow hair, and they eventually fall off as they create friction between the hair and the string.
- Excess rosin flies off the hair as you play. You may see more rosin dust flying off the hair if the hair is old.
- After rehairing, when the hair is fresh with no rosin, you don't have to put powdered rosin to start off. It is more efficient to apply a small amount of rosin more frequently instead of a large amount at once.
- **Do not clean the hair with harsh chemicals such as alcohol or acetone.** In doing so, the hair may feel new but will lose its integrity because the chemicals soak into the cortex layer.