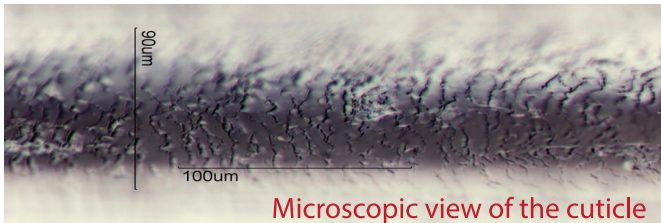
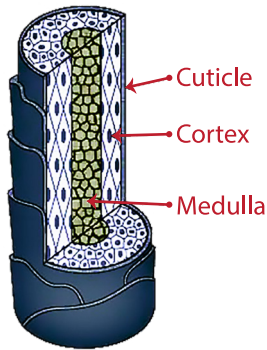


Bow hair

Bow hair comes from horse tails. White hair is not bleached but actually comes from white horses. Bleaching is avoided as it damages the hair. Hair has three parts: medulla, cortex, and cuticle. The cuticle, made of keratin, is the outer layer that contacts the strings.



Microscopic view of the cuticle

The cuticle of bow hair has a fine surface texture resembling fish scales. Although this texture does not directly contribute to creating friction on the string for vibration, it is rough enough to scrape and lift particles from the rosin.

Rosin

Rosin serves as the fuel for the bow, creating friction that produces sound on the instrument. It is a crucial component of the ideal performance setup, as different rosins can elicit varying sound textures and tone colors from the instrument.

Rosin is derived from the resin, or sap, of various conifer trees, predominantly pine trees. Resin is typically obtained through a process called tapping. The color of rosin does not significantly determine its characteristics. Dark rosin is not always softer and stickier than light rosin. The color can vary due to factors such as the tree species used, the temperature at which it is melted, and the duration of the heating process. Some rosin manufacturers even add color pigments solely for visual purposes to create a darker appearance.



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

Rosin is not significantly affected by humidity. However, temperature can affect 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 unaffected by cold temperatures, some harder rosins can potentially crack when subjected to a sudden temperature change from cold to hot.

There is no magic rosin that revitalizes bow hair in unfavorable climate conditions. It is important to accept and work with the realities of Mother Nature. Here are some practical ways to cope with such challenges.

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 have a negative impact on its lifespan.
- **Rosin your bow hair prior to exposure in a humid environment.**
- Avoid forcefully tightening the bow after the hair has lengthened.

When it is dry

- The bow hair shrinks when it's dry. It is generally safe to use the bow unless it becomes excessively tight.
- To prevent potential damage from excessive tightening, store the bow with a damp cloth, sponge, or a humidifying device inside the case. This helps maintain an appropriate level of humidity for the bow hair.

When it is hot

- Opt for a hard rosin, such as SOLO or Signature Formula, as it has a higher softening point and can withstand higher temperatures for longer durations.
- **Apply rosin to your bow hair prior to exposure in a high-temperature environment.**
- Keep in mind that softer rosins can become excessively soft and sticky on the surface more quickly in warm conditions. Avoid applying rosin when the surface is overly tacky, as it is not beneficial especially for 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 start to play. If the hair is old, you may notice more rosin dust being released.
- When the hair is freshly rehired, there is no need to apply powdered rosin initially. It is more effective to apply a small amount of rosin frequently rather than 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 these chemicals can penetrate the cortex layer and compromise the integrity of the hair.