



Tar paper and roofing felt help protect a building's wooden frame from water damage. Image Source: Creative Commons user U.S. Marine Corps

When a contractor is building a structure from scratch, they have to ensure that the [wooden frame](#) is well-protected at all times. Just one afternoon of heavy rainfall could cause significant water damage and may even make the building more prone to rot, leaks, and mold in the future. This is why many contractors use tar paper or roofing felt to add an extra layer of protection to a structure. In fact, this construction material is a requirement under many building codes around the country.¹ High-quality tar paper and felt is waterproof, which protects the building from environmental damage over time. And, in some cases, the paper may also improve the [appearance of a building's roof](#). The product provides a smooth, even base for the shingles to adhere to, allowing them to lay perfectly flush against the surface.

Because tar paper and felt are the base on which shingles and [siding materials](#) are later applied, product consistency is absolutely essential. Not only does the texture and thickness of the product have to be exact from roll-to-roll in order to provide an even base layer, color quality control is also important to facilitate correct markings and measurements. When you use a spectrophotometer to test your tar paper or roofing felt during the manufacturing process, you ensure color consistency in every roll.



If tar paper isn't consistent in color, it can be difficult for contractors to make accurate measurements. Image Source: Flickr user Stone Soup Institute

Achieving Color Consistency in Tar Paper or Roofing Felt

Color consistency is important in tar paper and felt and can vary in based on the types of materials you use to create your products and how much asphalt you impregnate into the raw materials. Tar paper is either made with fiberglass or cotton rag scraps, which are then dipped in a thin layer of tar.² Likewise, roofing felt is made from wood pulp products like cardboard and sawdust, which are soaked in a layer of thinned liquid asphalt. In both of these products, the addition of tar or asphalt causes the product to turn black. Generally, the more tar or asphalt you add to the material, the darker and heavier the final product will be.

This means that the color of your product may vary slightly if you add too much or too little asphalt or tar to the mix. Using a spectrophotometer, you can detect slight variations in color between one roll and the next, which may help you identify certain manufacturing inconsistencies, such as adding too much asphalt into the mix. If you add too much asphalt, then your product may be heavier than expected, which could make it difficult to install for certain uses, such as siding protection. And, if your product has too little asphalt in the mix, then it may be too lightweight, making it difficult to keep the product in place when it's applied to rooftops.

Color consistency is also important for your customers. Tar paper and roofing felt are flexible, making it easy for contractors to maneuver pieces of it around uneven rooftops. But in order to ensure that the paper or felt rests flush against the roof and that each piece is cut to the roof's exact measurements, contractors need to make chalk markings directly onto the tar paper or felt.³ Products that are one solid shade of black are easier to measure and mark because contractors

can clearly see their markings against the background. If your product has areas of patchiness, or appears too grey in color, then it may be harder for contractors to see their measurements. Spectrophotometers can help you set a standard color for your products and ensure that each roll falls within that specified tolerance.



Contractors make markings on tar paper using chalk or markers. A rich black background allows them to easily see their markings and make accurate measurements. Image Source: Creative Commons user U.S. Marine Corps

The Benefits of On-Line Color Measurement Instruments

The color measurement instrument you choose will ultimately depend on your manufacturing needs. One option is to install on-line instrumentation directly into your manufacturing line. By integrating a color measurement system like this into your line, you eliminate some of the challenges associated with portable or benchtop spectrophotometers.

Portable and benchtop instruments require operators to manually measure each sample of tar paper or felt at precise intervals. Not only can this process be time-consuming, it also leaves room for human error and your sample may not accurately represent the entire batch of product. For instance, if just one small sample of your tar paper is discolored, but the rest of the batch falls within tolerance, then you may throw away yards of high-quality product by mistake. Continuous non-contact monitoring eliminates the need for manual sampling, making the color measurement process more seamless and ensuring that the entire batch is analyzed.

HunterLab's [SpectraTrend HT](#) is one of the most advanced on-line instruments available, using also uses 0°/30° geometry to measure color and while integrated height measurement accounts for texture variation to ensure the highest degree of accuracy. The SpectraTrend HT continuously analyzes the color of your products and instantly alerts you if a sample falls outside of your predetermined tolerance range, allowing you to quarantine defective product and take swift

corrective action. With tools like this at your disposal, you can achieve greater color quality for every product that you create.

HunterLab Solutions

HunterLab has decades of experience in the [building and construction](#) industries, helping manufacturers create high-quality, aesthetically-pleasing, and functional materials. Whether you're creating waterproof tar paper, cement materials, architectural glass or fiberglass roof shingles, we can help you find the best instrument for your needs. [Contact us](#) today to find out more about how spectrophotometry can improve your manufacturing process and allow you to realize your vision.

1. "The Purpose of Roofing Felt", <https://www.iko.com/na/residential/building-professional/the-purpose-of-roofing-felt/>
2. "Why Do I Need Roofing Felt?", <https://www.pacificwestroofing.com/blog/need-roofing-felt>
3. "Tar Paper", https://en.wikipedia.org/wiki/Tar_paper