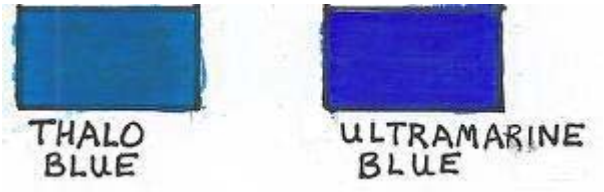
WARM OR COOL? Ultramarine Blue vs Thalo Blue ...

by **Sharon L Hicks**

Many years ago (we won't say exactly HOW many, but it's been a good long while) I set out on what has become a lifelong journey of exploring colour theory. As a young adult I exhausted every book on the subject at the local libraries wherever I lived, and I never stopped. I guess you could say it's been a never-ending passion, this thirst for colour knowledge. Nowadays of course, my library of choice is Google, and there are endless numbers of articles out there on various theories about how colour 'works'. And there are discrepancies out there too. Lots of them.

One thing I've been coming across lately, and I can't really say for sure just when I first noticed this, are articles from various sources which state that Ultramarine Blue is a warm blue, while Thalo Blue is a cool blue.

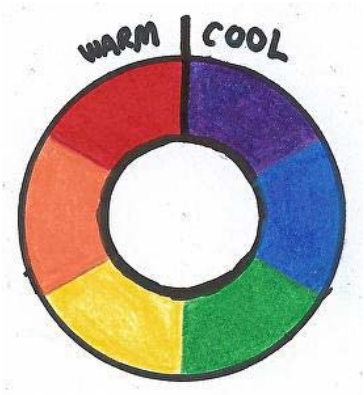


This flies in the face of what I studied about colour temperature 'way back when'. **I learned years ago that Ultramarine is cool, while Thalo is warm**. When did this shift in viewpoint 'out there' occur? And why?

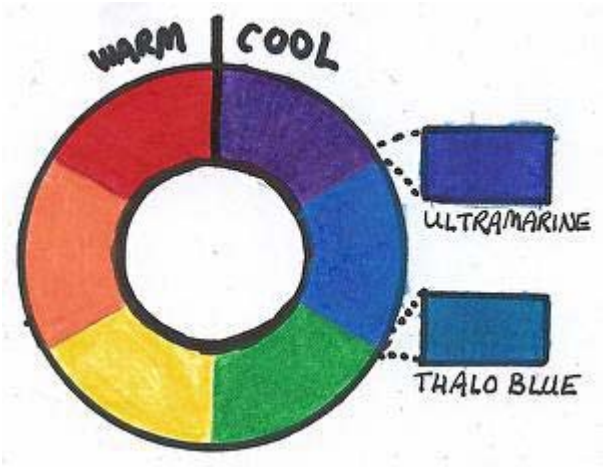
Those are the questions I've been pondering for the past few weeks, while I was busy updating notes for a workshop I was teaching on Basic Colour Theory. I'm the type of person who just "*has to know*", and so I set about to try and figure out just where this shift may have stemmed from. And I think I now may have the answer.

To determine Colour Temperature, most artists refer to the well-known Colour Wheel, which arranges colours in a circle. We're all familiar with the 3 Primaries (R – Y – B) spaced at equal distances around the wheel, with Secondaries (O – G – V) positioned between them, and so on. Various versions of this basic colour wheel are

commonly used by the majority of artists nowadays, and I believe this just might be where the confusion may have arisen over the relative temperatures of Ultramarine Blue and Thalo Blue.



The colours on the Red-orange-yellow side of the colour wheel are classed as Warm colours, while those on the violet – blue – green side are classed as Cool colours. That division is widely accepted, and is based in part on psychological connections our brains make when viewing certain colours. Red, orange and yellow are all seen as 'fire' colours, and our brains interpret them as warm. Violet and blue suggest icy shadows on snow, while green suggests the cool grass beneath our feet on a hot summer day. Seems straightforward enough, right? There's a lot more to it than that, of course, but this division of warm and cool is accepted as accurate.



When we compare two different blues, in this case **Ultramarine** Blue and **Thalo** Blue, with the generic blue of the colour wheel, we can see that Ultramarine leans slightly toward the violet side of Blue, while Thalo leans toward the

green side of Blue. So that places Ultramarine closer to Violet, while Thalo is closer to Green.

On this `standard` colour wheel, Violet is positioned next to Red, and Red is in the Warm zone. Therefore, if we use the colour wheel as our only reference, we might conclude that a Blue which is closer to Violet is also closer to Red, and therefore is warmer than a Blue which is closer to Green, which is further away from Red. So we might surmise from this that Thalo Blue is cooler than Ultramarine. This, I believe, is what a lot of people are doing.

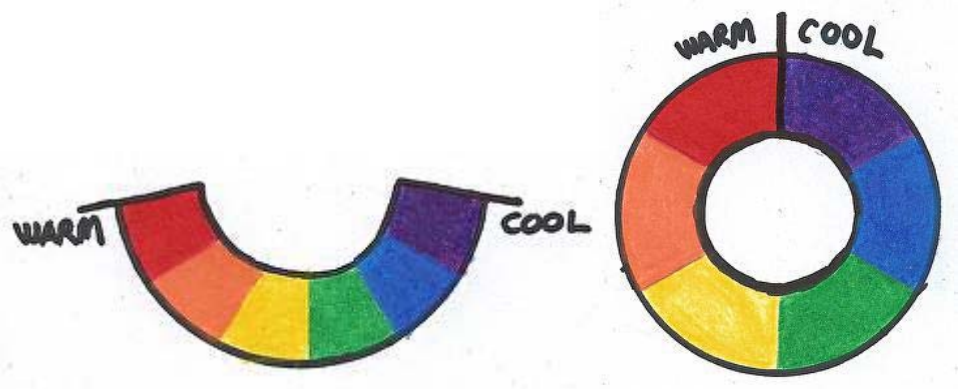
However, **let`s take a closer look at this colour wheel. Where does it come from?**

To fully understand the way the Colour Wheel 'works', we first need to take a look at the **Colour Spectrum.** What is this?

White light is comprised of different individual colour wavelengths, which our eyes and brains interpret as different colours. When this white light is broken down into its separate colour bands, as it is in a rainbow, we can see the different colours arranged in order of their wavelengths.

The colours in this simplified version of the Spectrum are arranged according to their relative wavelengths, with Red having the longest and Violet the shortest. Colour Temperature applies to this spectrum as well, with the colours on the Red end being warm, while those on the Violet end being cool. This is based on science, with the colours arranged according to measureable differences.

Now, let's bend the ends of the spectrum upwards (hypothetically of course), until the two ends join together. This forms a circle, which is what we call the Colour Wheel.



The point where Red meets Violet on the wheel actually indicates where the two ends of the spectrum meet.
Violet is not 'warm', even though it sits beside Red on the wheel - **it is still the coolest colour in the spectrum**, while **Red is still the warmest colour**. Those properties don't change simply because we've turned the Spectrum bar into a circle, or a wheel.

This appears to be where the notion arises that Ultramarine Blue is warm, while Thalo Blue is cool. **If we use just the colour wheel,** without considering its origins and underlying meanings, that would be the logical conclusion.

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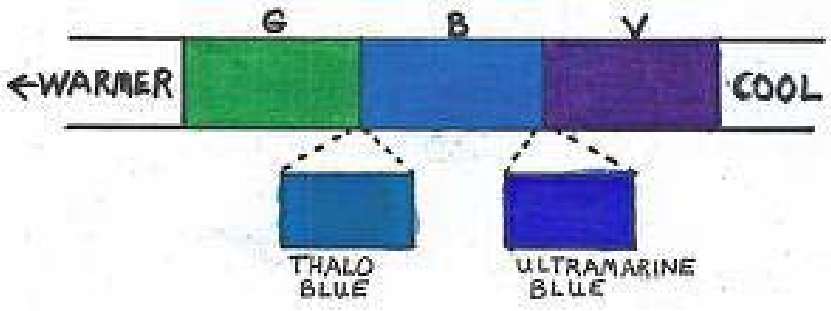
Now let's look just at the cool end of the spectrum - from Green through Blue to Violet.

We can see that Blue is situated between Green on the left, and Violet on the right. From the basic spectrum we learned that Violet is the coolest colour and Red is the warmest. Therefore, since Green is closer to the Red end than Blue is, then Green would be considered warmer than Blue. Conversely, Violet would be considered cooler than Blue.

Next, let's **compare Ultramarine Blue and Thalo Blue with this portion of the spectrum**.



First we will see that Thalo Blue has slight leanings toward Green, while Ultramarine Blue has slight leanings toward Violet.

Therefore Thalo would be located on the '*green end of blue*', while Ultramarine would be located on the '*violet end* of *blue*'.

Continuing on this line of logic, which is based on scientifically measurable properties, we can see that **Ultramarine is closer to Violet**, while **Thalo Blue is closer to Green**.

Violet is cooler than Green.

Therefore it follows that **Ultramarine Blue is cooler than Thalo Blue**.

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In summary, then - **for accurate colour temperature comparisons**, it's essential to **go back to the source -** the **Colour Spectrum**. That will give us the truest reference.