

# Matching FS Paint Colors

by Blaine Bachman

This article Copyright ©2006-2008 by Blaine Bachman. You may download this article for your personal use and research. You may also make paper copies and distribute them to other individuals providing that the article is copied in its entirety, including the byline and bibliography, no fee is charged (except for nominal costs of reproduction), and this notice remains intact.

You may link to this article on the Web provided you do not incorporate it in a frame or other method that would lead the average user to believe that it is part of another Internet site. You may not 'mirror' this article or this site without permission of the copyright owner.

## Background

Back in the 1980s, the MoLak company produced a comprehensive assortment of paints in the authentic colors of the Italian State Railways (Ferrovie dello Stato). Though the company is still in business and is connected with *Gieffeci*, perhaps the most prolific distributor of Italian trains, they no longer produce the FS colors. Having recently noticed that some of my MoLak paints were getting near the bottom of the tin, I decided that I needed to find suitable alternatives among the myriad of paint brands available at my local hobby shop.

Since my modeling interests are set in the Seventies, I have not done any significant research into the modern *corporate identity* colors applied to FS rolling stock starting in the 1990s. These newer paints are said to be mapped to the RAL color system which is widely used in Europe, although some hobbyist debate exists as to exactly which RAL colors the FS uses. Anyone with information in this area is invited to contribute to this work and will be fully credited for their research and results.

## Assumptions

My primary assumption is that the MoLak colors are a good match to those used by the FS. This seems reasonable to me given that the company is based in Italy and likely had access to definitive data on the subject. Furthermore, I have had the opportunity to visually compare a few of the MoLak colors to paints obtained from the locomotive depot at Alessandria Italy; and can report that the colors were practically identical. Finally, I have found that the MoLak paints are usually quite usable to touch up nicks and scratches on Lima, Rivarossi, and Arnold models of Italian rolling stock.

Tempering these assumptions is the understanding that paint lots (both prototype and model) vary over time and distance. For the modeler, it also bears remembering that paints weather and fade, and they do so at different rates depending on their color and chemical composition. Ultimately, this means that the definitive color for all situations does not exist.

## Methodology

Working off the primary assumption, I created a reference set of opaque color samples by applying each of the MoLak paints to a piece of white styrene plastic. For my initial assessment, I took this *color card* to a hobby shop and compared it to the manufacturer-supplied color chips mounted on the paint display racks. My goal was to find candidate matches among the railway-specific paints in the Floquil and Polly-Scale product lines, since

these were the products with which I was most familiar. Where possible, I also included comparisons to Badger Model-Flex paints.

I then obtained samples of the candidate paints and applied each to the card, positioning it somewhere around the perimeter of its corresponding reference color so that any difference between the two could be quickly discerned. Once the samples were dry, I made a visual evaluation under both artificial light and natural sunlight and recorded the results as well as my subjective impressions.

I performed the above procedure through several cycles, working my way through other product lines including Polly-Scale military paints and ModelMaster original and acrylic formula paints. I consider my research as yet incomplete because I do not have first-hand access to other brands of model paint (like Humbrol, Gunze, and Tamiya) that are widely available in other lands but less so in the United States.

## **The Results**

The data which follow depicts the to-date results of this research in tabular form. It is organized by individual FS color and grouped by color family (a subjective construct entirely my own). Since my objective is to create a fairly exhaustive data set usable by Italian Railway modelers world wide, I plan to add to this information as new data is discovered.

Final evaluation on some of the paints shown in the table is yet to be done. I have included these paints in the table because of their evident similarity to the reference color and as a reminder to me to complete the task.

## **Reflections on Grey**

Grey has (or is affected by) scale. This I've learned from experience but I don't believe it constitutes an original thought on my part. I've no doubt read something to this effect, somewhere, sometime in the past thirty years. I suspect that to a lesser extent, scale has a bearing on how we perceive most any color, but grey seems to be the most unforgiving. I came to this conclusion while mixing paint for an N scale version of a train produced in HO but not in N.

The real (1:1 scale) train runs through my home town and at first glance I would have sworn that the train is painted white (or nearly so). But white didn't look right on the model. Turning my attention to the grey that the HO manufacturer used, I came up with a near perfect match using Floquil SP Lettering Grey lightened with several drops of Reefer White. To prove my formula I repainted a roof panel and once dry it was impossible to tell which part had been retouched. I proceeded to paint and decal an N scale car only to become perplexed when it turned out looking darker than its HO counterpart. Upon closer examination, I concluded that it was the same color, but then again it wasn't. It was at that moment I remembered the concept, "Grey has scale."

Ultimately, I settled on a 50-50 mix of the grey and white paints. The N scale car was now a shade or two lighter than the HO car, but when placed together they appeared to be the same color. I won't attempt to provide a scientific explanation for this phenomenon – I earned a Master's degree without writing a thesis and I don't intend to write one now. Suffice it to say that you can prove this to yourself through your own observations. As further proof, recall that from the early days of the hobby, modelers have been advised to add a few drops of white to Engine

Black paint as a way to make the finished model appear more realistic under normal layout lighting. Since black is the ultimate shade of grey, this is merely the extreme manifestation of the phenomenon.

Returning to the subject of FS Paint Colors, I suggest that each modeler will have to arrive at his or her own conclusion when it comes to the slate grey (*grigio ardesia*) paint that was once the most common Italian passenger car color. I have little doubt that MoLak's *Grigio Ardesia* matches the FS paint chip, but to my eye it is too dark, especially in N scale. At normal viewing distances, this color appears almost black. Still, if the modeler is attempting to duplicate the color Fratix or Arnold used on its catalog offerings, this paint (and my SP Lark Dark Grey substitution) provides the best match.

As noted in the table, Floquil's SP Lark Light Grey is a closer match for Rivarossi's N scale color and, were I repainting my entire fleet, I would use this lighter paint. The result would be a consist more like the picture that appears in my mind's eye when I reminisce about riding Italian trains in the Seventies. Kudos to Rivarossi for (evidently) being aware of the finicky nature of grey and adjusting their paint formula accordingly.

In conclusion, Model Railroading is arguably a careful blending of art and science. The quantity of each in the mix is left to the discretion of the hobbyist and each onlooker will have a differing opinion regarding the result. Perhaps the only 'sin' is to take an approach that is either purely scientific or purely artistic, but even that may be too harsh a judgement.

**Table 1 - Color Match Results (updated Dec 2008)**

<b>REDS:</b>	<b>COLOR</b>	<b>MFG</b>	<b>CAT #</b>	<b>MATCH</b>	<b>COMMENTS</b>
Rosso Segnale	Signal Red	Floquil	110065	Excellent	
	Signal Red	Floquil Acrylic*	404091		
Rosso Vagone	Zinc Chromate Primer	Floquil Enamel	110601	Excellent	Near-perfect match
	Oxide Red	Floquil Enamel	10186	Acceptable	Lighter, sandy version of similar color
Rosso Fegato	ATSF Mineral Brown	Floquil Enamel	110179	Excellent	Very good match
	Erie Lackawanna Maroon	Floquil Acrylic*	414242		
<b>GREYS:</b>	<b>COLOR</b>	<b>MFG</b>	<b>CAT #</b>	<b>MATCH</b>	<b>COMMENTS</b>
Grigio Nebbia	SP Lettering Grey	Floquil Enamel	110130	Excellent	Near-perfect match
	SP Lettering Grey	Floquil Acrylic*	414179		
	Italian Blue-Grey	ModelMaster	2113		
Grigio Ardesia	SP Lark Dark Grey	Floquil Enamel	110132	Excellent	Matches MoLak perfectly. Close match for late Arnold/Rivarossi UIC-X coaches
	SP Lark Light Grey	Floquil Enamel	110131	Acceptable	Close match to early Rivarossi UIC-X coaches

<b>BROWNS:</b>	<b>COLOR</b>	<b>MFG</b>	<b>CAT #</b>	<b>MATCH</b>	<b>COMMENTS</b>
Castano	NATO Tricolor Brown	Floquil Acrylic*	505352	Excellent	Near-perfect match
	IJA Brown	Floquil Acrylic*	505276	Excellent	Near-perfect match
	Italian Dark Brown	ModelMaster	2111	Acceptable	Right 'family' but a shade light
Isabella	Rail Brown	Floquil Enamel	110007	Excellent	Near-perfect match
<b>OTHERS:</b>	<b>COLOR</b>	<b>MFG</b>	<b>CAT #</b>	<b>MATCH</b>	<b>COMMENTS</b>
Verde Magnolia	Reading Green	Floquil Enamel	110183	Excellent	Near-perfect match
	M-K-T Green	Floquil Enamel	110320	Acceptable	Right 'family' but a shade light
	Reading Green	Floquil Acrylic*	414376		
Blu Orientale	ATSF Blue	Floquil Enamel	110177	Excellent	Near-perfect match
	ATSF Blue	ModelFlex	1634	Excellent	Near-perfect match
	Dark Blue	Floquil Enamel	110050	Acceptable	Right 'family' but a shade light
	ATSF Blue	Floquil Acrylic*	414150	Acceptable	Right 'family' but a shade light
	C&O Enchantment Blue	Floquil Acrylic*	414360		
	B&O Royal Blue	Floquil Acrylic*	414269		
Bianco Avorio	Antique White	Floquil Enamel	110005	Excellent	

\***Floquil Acrylic** is the current brand name for the product previously known as 'Polly Scale' or 'Polly-S.'