

Same ship, different day. Adjusting the boom controls, Ryan rises 20 feet in the air to where he left off yesterday and begins to spray. Join the Navy, they said. Above him the curve of the hull and the broad, flat deck seemingly miles above overhangs him, blocking out the morning sun. He sprays a broad line, then adjusts his boom controls, then sprays another broad line. See the world, they said. He pauses to jam his earplugs deeper into his ear canals, but the dull vibrations from the thousands of workers involved in overhauling the aircraft carrier still pulse through his skull, heavying his thoughts. He turns his head to look down the length of the hull at all the steel yet to be painted. This would take weeks. If not months. I should have been a Marine, thinks Ryan, as he adjusts his boom controls and sprays another broad line of the same, dull, haze grey.

U.S. Navy Buys Large Volumes of Polysiloxane Paint

The U.S. Navy currently maintains around 430 active and reserve duty ships, including ten aircraft carriers. Each aircraft carrier takes 200,000 gallons¹ or more of haze grey paint to cover. That's 2 million gallons of paint used on aircraft carriers alone, if only one coat were to be applied. But even though the Navy has begun using high-tech polymer paint applications² made of polysiloxane that last many times as long as older silicon alkyd paints, each ship must still be repainted on a consistent basis. The same holds true for the other 420 ships in the fleet, and any and all new ships currently under construction. This means that if you're selling paint to the Navy, you're selling a lot of paint.



Harsh conditions require constant repainting of Naval ships with older paint formulas. Image Credit: Flickr User Kevin Burkett ([CC by 2.0](https://creativecommons.org/licenses/by/2.0/))

More specifically, you're selling a lot of "haze gray" paint³, which is the exact shade of grey the Navy mandates all ships be coated unless otherwise specified. This particular shade is required based on research determining the precise average shade of sea and sky on the horizon, to help naval ships

blend into their surroundings. As a result, the specifications manufacturers must meet when delivering batches of paint to Navy shipyards, or the shipyards of Navy contractors such as General Dynamics or Huntington Ingalls⁴, are rigorous and carefully enforced.

Color Quality Control Essential for Manufacturers of Haze Grey Naval Paint

Manufacturers must meet these standards, or risk having shipments of paint rejected. Any product failure can be extremely expensive, as polysiloxane paint is far more difficult⁵ to produce than a standard oil or acrylic paint for household or light commercial use. The advanced polymers are synthesized through a series of complex processes requiring high heat and volatile components. Every rejected batch causes manufacturers to lose money on the materials wasted, the energy involved in product synthesis, lost production time, and the costs of packaging and delivery.

While the color requirements do not change over time, and the paint formula remains the same, slight alterations in the starting materials and the synthesis procedure can result in colors that do not meet Navy standards. It's therefore essential for manufacturers to use spectrophotometric quality control during the production process to ensure that any deviations from color standards can be corrected in situ.



If it moves, salute it. If it doesn't move, paint it. Image credit: Flickr User John Lillis ([CC BY 2.0](#))

Spectrophotometers Reduce Enterprise Contract Uncertainty Risk

It is unlikely that a small percentage of failed batches will create significant financial hardship for a manufacturer meeting the requirements of a lucrative defense contract or subcontract. However, these contracts are consistently up for renewal⁶, and manufacturers aggressively bid and lobby each time a contract is being awarded or renewed. Many factors are assessed by budgetary officers in charge of finding paint suppliers for the Navy, and among them is quality and consistency of past deliveries. Should repeated batches of paint be rejected due to a failure to meet color standards,

this may sway an officer's decision away from one manufacturer and towards a competitor. This loss of revenue could be devastating to a manufacturer, potentially requiring significant downsizing to handle such a large reduction in demand. If such downsizing were to occur, that manufacturer would then become less competitive for future contract bids.

It's very important to the Navy that their ships be well camouflaged to hide from hostile eyes. It's equally important for manufacturers supplying paint to the Navy to meet their color standards, to maximize their survival potential by safeguarding their contracts. Mil-Spec colors, as they are colloquially referred to, have very tight tolerances. Depending on the application, they may have special requirements for minimum reflectance in the near IR region. Under these circumstances we recommend using the [UltraScan PRO](#) for color measurements. Otherwise a [LabScanXE](#) should suit your QA needs. To learn more, [contact the experts at HunterLab](#).

1. "Building a Giant: Gerald R. Ford (CVN 78)," 2013, <http://thefordclass.com/doc/Ford-fact-sheet.pdf>
2. "A Fresh Coat of Pain Can Save Navy Billions," 2014, <http://www.nationaldefensemagazine.org/archive/2014/May/Pages/AFreshCoatofPaintCanSaveNavyBillions.aspx>
3. "Navy takes different approach to painting vessels," 2014, http://pilotonline.com/news/military/navy-takes-different-approach-to-painting-vessels/article_26c524e5-f472-51bf-8c5f-ee1249d34da2.html
4. "U.S. Navy Shipbuilding," <https://shipbuilders.org/us-navy-shipbuilding>
5. "Single-Component Polysiloxane Coating for Navy Topsides," 2013, https://www.nrl.navy.mil/content_images/2013Review/13_FA2.pdf
6. "PPG Navy Contract Could Top \$44M," 2013, <http://www.paintsquare.com/news/?fuseaction=view&id=10610>