

# What's your boat building footprint?

compiled by Ashlyn Brown  
with help from a smart person and the internet

*"Besides actively playing a part in creating toxic waste, I really do like this project,"* wrote one customer building the PT 11 nesting dinghy.

So what is the truth about epoxy? Let's look at three "big" words: 'Toxic', 'Waste', and 'Toxic-waste'.

## TOXIC;

Epoxy Resins and Hardeners are chemicals, (like bleach and gasoline). They must be respected and require proper working practices. The word "toxic" is troublesome and very complex as there are types and degrees of toxicity and differing standards. In our opinion, all chemicals are "toxic", as very few man-made chemicals are considered "good" for our bodies. It is true that some formulations are less bad for people than others but none of them are good for us, like hummus is. However; in building boats they are necessary if you want to maximize combinations of lightweight, strength, longevity, and efficiency. Further, just because a formulation may have "green" elements, there is no correlation to those elements providing a "less toxic" or "safer" formulation. Chemicals are chemicals regardless of their derivation. Of course you could mix some delicious hummus into your epoxy. However; the resulting mix would likely make a lousy fairing compound.

## WASTE;

-Is epoxy made from waste?-

To use the word "waste" in reference to the building blocks of Epoxy Resin is a bit of a misnomer. Oil has lots of valuable hydrocarbons in it, including those converted into Gasoline. The Oil and Gas industry is very good at converting other byproducts of oil cracking into useful materials to reduce waste. Some of those byproducts are indeed used as these building blocks for Epoxy Resin; namely Propylene and Benzene. Both of these compounds are ubiquitous in plastics. Only about 1.6% of the oil consumed in the USA ends up as Petrochemical Feedstocks like Propylene and

Benzene; a fraction of that going into Plastics and a fraction of that fraction going into Epoxy Resins. The majority of oil goes toward moving people from point A to Point B. (Gasoline consumes about 47% of oil. ) Not a single oil producing company would go through the trouble of extraction for the 1.6%.

So, epoxy uses byproducts from the oil industry that might otherwise become 'waste' and extracts additional value from a barrel of oil.

-What about epoxy creating waste?-

Building just about anything creates a large amount of trash. One can control the amount of garbage by working carefully and being well prepared before mixing a batch of epoxy, keeping areas clean, mixing small batches, re-using syringes, using paper cups recycled from coffee purchases, and other creative thinking...

#### TOXIC WASTE;

Epoxy has extremely low VOC's\* and cures into an inert form. "Properly cured West System® Resin and Hardener is non-hazardous, non-"toxic" and Inert. Just like most other plastics." This would also apply to used/non-reusable consumables like roller covers as long as they don't include un-mixed epoxy. Plastics, of course, are a problem in the big picture, when they end up in the land fill. The idea of a carefully built wood/epoxy boat is that it should last for generations, keeping it out of the waste stream, unlike the zillion other plastic things that end up in the garbage.

What is and what is not "hazardous waste" and how to dispose of it all? Learn more here: <https://epoxyworks.com/index.php/proper-disposal-of-leftover-resin-hardener/>

Our conclusion; The waste footprint of wood/epoxy and relative risk of toxic interaction compare favorably to other boat building methods if good metering and mixing practices and general cleanliness are employed. Additionally, boats built from wood epoxy can possibly last forever and that should be factored in to all the other positive qualities of wood/epoxy boat buliding.

\*-**Organic compounds** are **chemicals** that contain **carbon** and are found in all living things. **Volatile organic compounds**, sometimes referred to as VOCs, are **organic compounds** that easily become vapors or gases. Along with **carbon**, they contain elements such as hydrogen, oxygen, fluorine, chlorine, bromine, sulfur or nitrogen.

References:

<https://en.wikipedia.org/wiki/Epoxy>

<https://en.wikipedia.org/wiki/Hydrocarbon>

<https://en.wikipedia.org/wiki/Propene>

<https://en.wikipedia.org/wiki/Benzene>

[https://www.eia.gov/energyexplained/index.cfm?page=oil\\_use](https://www.eia.gov/energyexplained/index.cfm?page=oil_use)

[https://www.epoxy-europe.eu/wp-content/uploads/2016/09/EPOXY\\_SafetyBrochure\\_2017.pdf](https://www.epoxy-europe.eu/wp-content/uploads/2016/09/EPOXY_SafetyBrochure_2017.pdf)

<https://epoxyworks.com/index.php/proper-disposal-of-leftover-resin-hardener/>

<https://en.wikipedia.org/wiki/Toxicity>

[https://www.osha.gov/Publications/HazComm\\_QuickCard\\_Pictogram.html](https://www.osha.gov/Publications/HazComm_QuickCard_Pictogram.html)

<https://www.osha.gov/Publications/OSHA3844.pdf>

