

Tanks – different types and sizes

Tanks for liquids

Lots of variations of liquid content, but also on types, sizes, temperature, pressures etc:



Tank content – Chemicals

What paint system to choose is dependent of the tank content

- Crude oil
- Clean Petroleum Products
- Bio fuel
- Vegetable oils
- Drinking water
- Beverages (wine)
- Fire water (sea water, to cool other tanks)
- Other chemicals



Tank content

- Which paint to choose when?

Zinc Silicates:

- Alcohols
- Ketones
- Other Solvents

Vinyl Esters :

- Biofuels
- Acids
- Aggressive chemicals
- Temperature, max 85 °C

Epoxies :

- Alkaline solutions
- Some Biofuels
- Water in various forms
- Phenolic epoxies used for higher temperatures
- Oils (Veg. & mineral: Note acid Value)

Note:

- Use the resistance list.
- Technical Support from supplier

Tank coatings – Epoxy Systems

Epoxy Systems in general:

- Typical paint system: 2-3 coats to reach 12 mils Dry Film Thickness
- Light colors for ease of inspection and tank cleaning
- Resistant to many chemicals
- Short over coating time
- 30 years plus experience with this generic type of product

Tank coatings – Pure Epoxy

Pure epoxy

- Typical paint system: 2-3*4 mils Dry Film Thickness
- Light colors for ease of inspection and tank cleaning
- Resistant to many chemicals:
 - [Varies product to product](#)
- Typical 3 weeks overcoating time (73.4°F)
- Pure epoxy technology to meet specific owner requirements

- Good general chemical resistance, weak on acids

Tank coatings –Phenolic Epoxy

- Phenolic epoxy, mid range Volume Solids
- Typical paint system: 2*5 mils
- Typical 4 weeks overcoating time (73.4°F)
- Resistant to many chemicals:
 - Varies product to product, better than Pure epoxies
- Comments to general generic resistance:
 - Typical for dry temperatures up to 392°F
 - Crude Oil and water up to 203°F
- Good general chemical resistance but weak on Free Fatty Acids (FFA) for example Bio Fuels

Tank coatings – Novolac Epoxy

- Novolac epoxy, mid range Volume Solids
- Typical paint system: 2*5 mils
- Typical 4 weeks over coating time (73.4°F)
- Resistant to many chemicals:
 - Varies product to product, better than other Phenolic epoxies
- Comments to general generic resistance:
 - Typical for dry temperatures up to 392°F (often 320°F)
 - Crude Oil and water up to 284°F
- Good general chemical resistance very good on Free Fatty Acids (FFA) for example Bio Fuels

Tank coatings – Solvent Free Phenolic Epoxy

- Solvent Free Phenolic (Novolac) Epoxies
- 100% volume solid Novalac/Phenolic epoxy
- Typical paint system: 2*8 mils
- Resistant to many chemicals:
 - Varies product to product between pure epoxy and Novolac in performance
- Resistance to clean petroleum products
- Crude oil up to 302°F
- Ease of application, standard airless spray needs consideration

- General Chemical resistance is good, similar to other Novolac epoxies for FFA, and temperature resistance weaker on other chemicals

Challenge

- Knowing the Chemistry and theory is Good and Useful but other factors in paint formulation changes performance as do external factors such as:
 - Exposure & lifetime needs
 - Substrate preparation
 - Application possibilities
- Every Product is different
- Every Project has it's differences

Conclusion

- Know your needs
 - Budgets are critical
 - Always remember chemical resistance flexibility can help in the future
- Have an idea of the product type so that you are offered a proper proposal from the supplier
- Seek the suppliers technical advice on all aspects of the project
 - Substrate
 - Preparation
 - Application
 - Safety, Health & Environment requirements
- Check the resistance list meets your needs