

PPG Automotive Coatings Bulk Transport Requirements

PPG Automotive Coatings uses bulk transport in the following ways:

1. Solvents transported to our resin and paint manufacturing sites.
2. Resins, monomers, and any non-solvent product transported from our suppliers to our resin and paint manufacturing sites.
3. Resins and intermediate blends transported from one PPG site to another.
4. Paint and resin products transported from PPG to our customer sites.

Small amounts of low surface tension contamination can cause significant crater defects in PPG's resins, intermediates, or coatings. Guidelines and requirements for the selection, cleaning, and inspection of tank/container must be followed.

The following applies to Road tanker / tank wagon (all typology) or Iso Tank container (all typology including swap bodies) named below as tank/container used for PPG Automotive Coatings business:

Where possible, use dedicated tank/container for deliveries to PPG facilities.

If the tank/container is not dedicated, then tank/container selection must meet the following criteria:

- The last prior content for a solvent delivery **must be another solvent (see TABLE 1)**.
- The last prior content for a non-solvent delivery (resin, monomers,...) **must NOT be a material on the prohibited list (see TABLE 2)**.
- Documentation indicating the prior load (e.g., wash ticket) must be available to PPG receiving personnel upon arrival.
- If the name of the previous load in the cleaning certificate is a commercial name that is not known by PPG receiving facility, the **SDS & TDS is required preferable in the local language and at least in English** to check the compatibility according to the TABLE 1 & 2 below.

Solvent Refillers

Suppliers filling solvent must ensure that the carriers loading and handling solvent in their facilities must follow the prior-load rules according to Bulk Transport Requirements for solvent deliveries.

If there are any questions regarding a prior load, check with the Quality manager at the PPG receiving site prior to tank/container selection

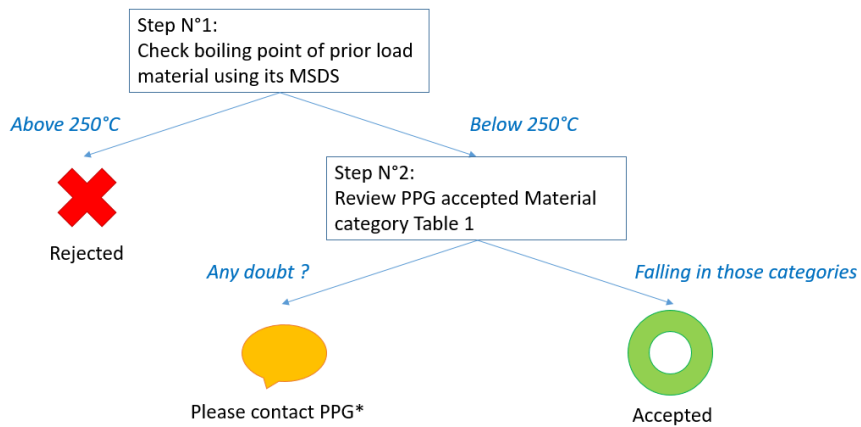
TABLE 1 Approved Prior Contents for a Solvent Delivery*

Alcohols ⁽¹⁾	Aliphatics	Acetates
Glycol Ethers	Aromatics	Esters / Ethers
Glycol Ether Esters	Naphtha / Mineral Spirits	Ketones

***Commonly used as solvent, thinner, co-solvent, in the paint and coatings industry. Pure or blended solvents with ending boiling point at max. 250°C**

⁽¹⁾ Excluding fatty alcohols with C atoms >= C10.

Important Steps to select the right prior-load for solvent deliveries:



*Please refer to this link to find the right Quality and Purchasing contact per PPG location:

https://corporate.ppg.com/getmedia/c4214e59-37f0-4bcf-87e7-775d07ddfcf1/SQR18_PPG-Automotive-Contact-List.pdf

TABLE 2 Prohibited Prior Contents for a Non-solvent Delivery

	Low Surface Tension Materials	Oils & Greases	Strong Acids & Basis ⁽¹⁾	Colorants Pigments	Others ⁽²⁾
Examples	Silicone based materials	Lubricant and machine oils Brake fluids	Hydrochloric / Perchloric	Dyes	Plasticizers (viscosity > 500 mPas-1) Fatty acids and fatty alcohols with C atoms >= C10
	Fluorine based materials	Petroleums, Gasoline, Diesel, Kerosene	Sodium Hydroxide	Pigments/Colorants Dispersions	Emulsions Dispersions
	Surfactants Defoamers Dispersants	Silicone Oils/ Silicone Greases Waxes	Phosphoric acid	Pigments & fillers slurries Paints & primers (could be film forming)	Halogenated hydrocarbons Liquid to waxy (any kind of material)
	Release agents	Animal/Rendered greases			Latex with easily film forming

⁽¹⁾ Can be accepted after rinse with water and pH measured as neutral (EFTCO Code T20)

⁽²⁾ Can be accepted after caustic cleaning (EFTCO Code C30)

General rule excluding ⁽¹⁾ and ⁽²⁾ if prior content is **fully soluble** in water the material would be acceptable.

If prior content is a **main** ingredient of the loaded material would be acceptable (i.e., formaldehyde as prior content of melamine resin. Soy bean oil, castor oil as ingredient of polyester or alkyd resins)

Supplier is fully responsible to deliver material free of any contamination for the coating industry.

When there is a failure to supply the correct pre-load, PPG reserves the rights to bill the supplier for the cost incurred including material and labor cost associated with the non-conformity.

Additional information:

Solvent used for flushing or cleaning is not considered the prior load

Silicone refers to poly-siloxanes – e.g. poly-di-methyl siloxane (PDMS)

Fluorine based – e.g. perfluoropolyether (PFPE) or polytetrafluoroethylene (PTFE)

Tank/container with more than one compartment shall have a label directly at the valves to prevent connections to the incorrect compartment for sampling and off-loading.

Newly fabricated or internally repaired tank/container present a higher risk with regard to low surface tension contaminants being present – additional cleaning will be required before putting into service for PPG materials.

Detergent or caustic residue from the cleaning process can cause defects in our products if not completely rinsed from the interior surface. The pH of the rinse water should fall between 6.5 and 7.5.

For European locations (PPG EMEA), for non-dedicated tankers or when prior load differs from the delivery load, all tankers must be cleaned prior to loading the intended delivery. Transport companies should use EFTCO and/or PPG approved cleaning stations.

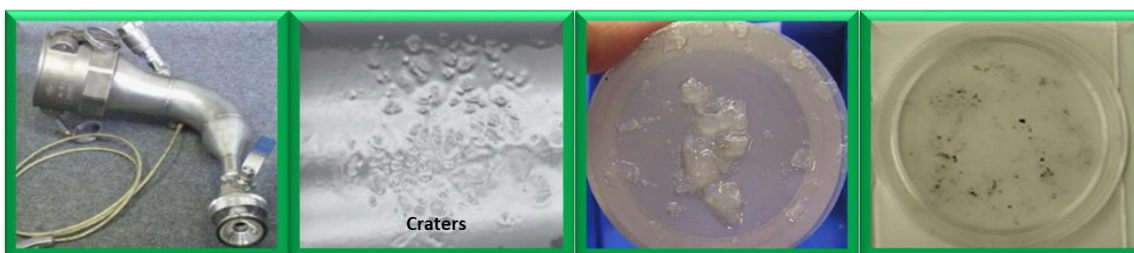
The cleaning certificate is mandatory for loading and unloading processes. Ensure that the driver provides the original copy (not electronic) of the EFTCO cleaning certificate.



The test for pH of the rinse water must be indicated on the cleaning certificate according to code "T20".

Tank/container **Sampling and Testing – Incoming Solvents and Resins**

At PPG facilities, inbound solvent tank/container are sampled for evaluation. Where possible, the tank/container is sampled from the bottom valve using a filter fixture attached to a small filter housing. The filter is removed from the housing to evaluate for dirt and gels (see pictures below). Solvent and some resin samples are tested for crater causing contamination prior to approval of the load.



Solvents that require "Anti-Stat" additions are tested for conductivity to ensure compliance with safety requirements.

Tank/container deliveries to PPG's Customers which are not dedicated require review of the last 3 prior loads. All 3 of the prior loads must meet the criteria in TABLE 2. For solvent/thinners please refer to TABLE 1.

In addition to having the cleaning documentation with the last load available, the transport company must also be able to provide the identity of the second and third last load upon request.

NOTE: For deliveries to and from PPG sites, requirements may differ in different countries and regions. Please ensure that you have contacted your local PPG Purchasing representative to confirm the PPG location specific requirements.