

Preventing Contamination of Wine (in Flexible Containers)- Part 1

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What is Contamination?

- ❖ It isn't something that develops within the wine (eg. infection, oxidation).
- ❖ Contamination can come from the environment.
- ❖ There may also be some migration of packaging materials components.

Flexible Containers

- ❖ Flexible bulk bags (flexi-bags) are made from plastic polymer materials, similar to BIB.
- ❖ They're used within dry goods shipping containers when transporting bulk wine.



Flexi-bag Development

- ❖ Steel tankers are not always available, possible or economic for bulk wine transport across oceans.
- ❖ Started in the 80's with re-useable PVC bags.
- ❖ Single use bags introduced in the 90's and chemical barriers used.
- ❖ Now we have multi-layer and single layer bags.
- ❖ Typically these bags come with a separate outer chemical barrier (either EvOH or aluminium laminates).

Contamination of Wine in Flexi-bags

- ❖ Bags have some permeability and are not an absolute barrier to every type of potential contamination.
- ❖ Bag materials should be approved for food contact, so any contaminants will typically come from the environment during transport or storage.
- ❖ Initial issues were reported with TCA; now some problems with naphthalene and toluene have been experienced.

Potential Contamination

- ❖ Wine is at risk from low level contamination when it is transported in flexi-bags.
- ❖ Examples of contaminants found in the trade include:

Naphthalene

Toluene

TBA/TCA

Styrene

Benzene

Ethyl Benzene

Xylene

Oil/grease

Possible Sources of Contamination

- ❖ Shipping containers (paint, sealants).
- ❖ Wooden container floors and wood treatments.
- ❖ Cargo in neighbouring shipping containers.
- ❖ Vehicle and machinery exhausts.
- ❖ Contaminated transport or storage bags.
- ❖ Migration from plastic materials.
- ❖ General environment (eg. tarmac, fumigants, pesticides).



Reducing Contamination Risk

- ❖ There are ways to reduce the risk from some sources, for example:
 - Single use bags (already done by the industry).
 - Replace wooden container floors with plastic/steel (food grade).
 - Identify contaminated containers and exclude those that can't be cleaned.
 - Secure protection of the bag during transport (eg. remove sharp objects, line the inside etc.).
 - Food only shipping?

Conclusion

- ❖ Can't exclude all sources of contamination (virtually impossible!).
- ❖ So the effectiveness of the flexi-bag chemical barrier is paramount in protecting against contamination of wine.

Bon Voyage!

