III.3.1 General

Two types of alteration can occur in wine during the operations dealt with in this Guide; oxidation and contamination. The susceptibility of wine to alteration depends upon several factors including the type and characteristics of wine under consideration. These should be considered when transporting the wine.

3.1.1 Oxidation

Contact of wine with oxygen, present in the atmosphere, causes chemical changes in the wine which change its quality. Much can therefore be gained by limiting to a maximum the amount of air contact with the wine and this principle is the basis of several of the recommendations in this Guide. Oxidation proceeds more rapidly as temperature increases, so each operation should be carried out at the lowest practicable temperature but without stimulating tartrate precipitation where either the supplier or the purchaser wants to avoid it. In any case, it is worth noting that oxygen is more soluble in wine at low temperature than at higher temperature. The rate of oxidation may be increased by the catalytic action of certain metals, even when trace amounts are present. Because of this, great care should be taken in the selection of materials which come into contact with the wine during transport.

3.1.2 Contamination

Undesirable contamination may be chemical, physical or microbiological in nature. It may arise from residues of a previous material handled in the equipment, from ingress of dirt, rain or seawater or through the deliberate or accidental addition of a different product. In ships, particular difficulty may be experienced ensuring cleanliness of valves and pipelines, especially where they are common for different tanks. Contamination is avoided by good design of the systems, adequate and strict cleaning routines and an effective inspection and sampling service, and the rejection of tanks which have carried unsuitable previous cargoes.