CA

# 69403.1 Cardiovascular Toxicity

**(a)**

The cardiovascular toxicity hazard trait is defined as the occurrence of adverse effects on the structure or function of the heart or the vascular system following exposure to a chemical substance.

**(b)**

Toxicological endpoints for cardiovascular toxicity include but are not limited to observations indicating: structural effects associated with cell necrosis, cellular degeneration, proliferation, fibrosis, or inflammation of the heart or vasculature, atherosclerosis, thickening of arterial walls, or cardiac hypertrophy; functional effects such as arrhythmia or changes in rhythmicity or contractility of the heart, hypo- or hyper- tension, decreased cardiac output, alteration of vascular reactivity or vessel dilation or contraction; outcomes of structural or functional impairment including high blood pressure, myocardial infarct, or cardiac failure; epidemiological or laboratory animal observations of cardiovascular morbidity or mortality in association with chemical substance exposure.

**(c)**

Other relevant cardiovascular toxicity data include but are not limited to: markers of systemic inflammation; alteration of the electrophysiology of isolated cardiomyocytes; dysregulation of cytokines; platelet activation and aggregation; perturbation of clotting; changes in cardiomyocytes gene expression involved in

heart disease; alterations of cell signaling related to vascular or heart disease; in vitro measures of cardiovascular toxicity such as cytotoxicity to isolated vascular endothelial cells; structural or mechanistic similarity to other chemical substances that are toxic to the cardiovascular system.