24.1 INTRODUCTION

Decontamination, aimed at eliminating the contaminant and its human consequences, should be as rapid as possibly for the most efficient process. We propose approaches for operational and societal objectives depending on the (1) hazardous chemical nature, (2) its persistence and cross contamination risk, and (3) event circumstances e.g. location and numbers involved.

Best practices in skin decontamination may emerge from such information, including a decision support tool to reach the lowest level of chemical concentration as a "chemical no contaminant level."

Time and concentration of decontamination solutions are necessary to reach efficient skin decontamination. Therefore products mustn't irritate skin to be operational.

24.2 CONTAMINATION

24.2.1 Definition

Contamination results from chemical forms, such as vapor, steam, aerosol, dust, liquid, or solid contaminants, while gaseous products are considered noncontaminants because of their form. Gas mixed with water or other solvents, such as aerosols, become contaminants.

24.2.2 Contamination

The first, or direct, contamination results from direct contact with the hazardous substance. Secondary decontamination, also called cross contamination, results when an uncontaminated person, surface, or piece of equipment contacts them.

24.2.3 Skin Contamination

Contaminants, i.e. liquids and solids, spread on the *stratum corneum* (SC) and diffuse through the layers; anatomic pathways may favor penetration and accumulation of chemicals, depending on their characteristics such as physicochemical properties (log P, hydrophilicity, lipophilicity, molecular weight [MW]), as outlined in tables 1 to 24 of the thesis (1). The complex heterogeneous skin structure provides several penetration routes through SC barrier: the intercellular, intracellular, and follicular pathways.

Penetration mechanisms deal with the control of the intercellular penetration of lipids and through skin appendages (follicular pathway) that appears to contribute more than previously thought (2).