Safety Share: 3.7.11

Skin: Our skin is a lot more complicated than many of us might expect. After all, it can range in thickness from less than 0.1 millimeters to greater than a centimeter, depending on the specific area (as well as your chosen occupation) while consisting of multiple layers: each layer designed to perform very specific functions. And while it has an average area of 2 square meters (if one were to peel his/her skin off and lay it on the floor – don't try this at home folks!), it contains over two million sweat glands and provides protection from the sun's ultra-violet radiation. Our skin also regulates our internal body temperature even when we are subjected to extreme cold (see the recent SafetyShare on Cold Stress) or heat. Our skin plays an important role in the protection from outside contaminants, as it serves as our first line of defense from outside invaders. Normally dry, it provides a poor environment for microorganisms to live and accumulate – at the same time providing a physical as well as reactive barrier to many chemical contaminants; thereby stopping such substances from entering into our bodies and causing serious harm. Unfortunately, some materials, such as organic solvents and pesticides can be absorbed through the skin causing both immediate dermal dysfunctions and disturbances, while allowing systemic reactions, resulting to damage to internal biologic systems such as the liver and kidneys. This occurs when certain chemicals, after being absorbed into the skin, enter the blood stream where they can be transported throughout the body, residing in specific organs that are susceptible to the specific chemical. Therefore, when dealing with chemicals and other contaminants, we need to apply the appropriate personal protective equipment (PPE), such as gloves, coveralls or aprons. It is important to understand what the specific contaminants of concern may be as certain PPE materials may not be effective in stopping a chemical from contacting the skin; thereby resulting in an occupational illness. For instance, depending on the manufacturer, typical nitrile gloves are not designed to protect against aromatic hydrocarbons such as benzene and toluene, but can serve well against acetic acid, hydrochloric acid and cyclohexane (a better material for protection against benzene and toluene would be polyvinyl alcohol gloves). Therefore, prescribing the right PPE requires some research in which your safety and health professional can offer assistance. Damage to our skin can present some serious health problems. Some initiating from chemicals, others from the sun, or from fires, burns, cuts as well as contact with allergens (plants, animals, etc.). But we do have the means by which to properly protect ourselves. The first step is to recognize the potential hazard and

then to develop the proper controls. These controls may be using a hot work permit (to protect us from burns), use of sun screen or working in a shady area or wearing a hat (especially for follicle-challenged individuals) or wearing the right PPE. Your Safety and Health professional is ready to assist.