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## Toxicity Of Chemicals Used In Everyday Life – An Understanding

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### ABSTRACT

*With environment protection becoming a serious global concern, the philosophies of green chemistry have begun to have a lot of influence on the way in which chemical reactions are designed and conducted. Design and development of environment friendly methods of processing and production has become an important concern and atom economic methods of syntheses are also greatly stressed upon. These important initiatives will have more relevance if common persons are made aware that many chemicals used in day-to-day life are often very toxic and therefore need to be used judiciously.*

**Keywords:** Toxicity of Chemicals.

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### INTRODUCTION

**Relevance of green chemistry:** The relevance of green chemistry is not only restricted to the realm of academic research but is getting acceptance among chemical industries which actually are the main agencies for bringing about environmental change, and there are many renowned companies world-over which are taking great initiatives to green their chemical processes and products. Nevertheless, while there are many commendable green chemistry initiatives, however it may not be wrong to say that green chemistry continues to be an elitist concern. In general people are not aware or concerned about the hazards that can be caused due to misuse and over-use of chemicals. At the same time, consumer booms caused by an enhanced buying capacity along with creation of innumerable purchasing avenues has led to an enormous and endless demand for manufactured goods which has caused and allowed many smaller chemical processing and manufacturing industries to come up and operate in environmentally malevolent conditions, using chemicals and methods which are not quite in accordance with the tenets of green chemistry. Products are often manufactured using and including chemicals which have high levels of intrinsic toxicity. Compounded with the fact that there is a high level of ignorance among common people about the hazards posed by chemicals, extremely poisonous chemicals often unknowingly enter homes and are randomly used.

**Toxic Chemicals :** By definition, “a toxic chemical is any chemical which, through its chemical action on life processes, can cause death, temporary incapacitation, or permanent harm to humans or animals. This includes all such chemicals, regardless of their origin or of their method of production, and regardless of whether they are produced in facilities, in munitions or elsewhere”. [1] According to the common social

psychology, concerns relating to product misuse is easily ignored, usually because the harmful effects are not obvious and often not immediate. But the fact remains that many products which are even used at home contain poisonous chemicals, and some representative examples are shown in table 1.

**Table 1:** Toxic Chemicals Commonly used in homes[2-4]

Substance	May contain Toxic Chemicals such as:	Harmful Effects
Detergent	Sodium Lauryl Sulfate (SLS)	skin irritation to organ toxicity to even cancer
	Nonylphenol Ethoxylate (NPE)	May cause liver and kidney damage. Biodegradable, but biodegrades into more toxic substances.
	Optical brighteners	Can be toxic to fish and cause allergic reactions in humans
	Phosphates	Used to prevent dirt from settling back into clothes after being washed. Can stimulate growth of marine plants that trigger unbalanced ecosystems.
Floor and Furniture polish	Petroleum distillates	Associated with skin and lung cancer; irritant to skin, eyes, nose, lungs; entry into lungs may cause fatal pulmonary edema
Paints	Aromatic hydrocarbon thinners; <i>Mineral spirits</i> ; Lead	Flammable; skin irritant; benzene is a carcinogen; possible liver, and kidney damage Damage to digestive, genitourinary, neuro-muscular and central nervous system; anemia and brain damage
Various cleaning products for glass, wood, metal, ovens, toilets, and drains	Diethylene glycol <i>Ammonia</i>	Toxic; causes central nervous system depression and degenerative lesions in liver and kidneys Vapor irritating to eyes; respiratory tract and skin; possible chronic irritation
Air fresheners and deodorizers	Formaldehyde	Toxic; carcinogen; irritant to eyes, nose, throat and skin; may cause nausea, headaches, nose bleeds, dizziness, memory loss, and shortness of breath

The problem that is faced is that while it may or may not be known that many household products contain toxic chemicals but it is also a reality that these products cannot be entirely done away with. Therefore what becomes essential is to educate the public regarding the risks involved in using certain products, thereby reducing their excessive and often unnecessary use. It is also important to develop and revive the traditional processes and products. In the present scenario it may seem like these products are not effective enough and are often prohibitively expensive thereby reducing their commercial potential. This however is not always the case. There are easy, environmentally benign alternatives available for certain existing products. Even for those who do not have an access to traditional sources of information, the internet provides very interesting and important alternatives to the use of commercial products. For example, very effective floor and furniture polish can be made out of natural ingredients like bee wax polish; vinegar, etc.[5] Again, air fresheners can be made by using common essential oils such as lemon oil which has antidepressant properties and orange oil which relaxes and rejuvenates, and many others.

## CONCLUSIONS

Proponents of green chemistry have been working tirelessly and there has been a radical change in which chemical reactions are conducted. However, the sole purpose of green chemistry, which is to protect and conserve the environment will not be achieved unless there is understanding and acknowledgement regarding detrimental effects of chemicals. Until such time, environmentally hostile chemicals will continue to have access to very benign surroundings like children's playrooms, domestic kitchens and the like.

**Note:** This is a general article written with an intention of popularizing the toxic effects of chemicals which are regularly used at home.

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