

Role of industries in saving the "Ozone layer"



Carbon Tetrachloride (CTC) has been rather popular when it comes to choosing a solvent for removing stubborn stains from a variety of substrates. Its solvency power, low cost and its non-flammability have made it a very popular solvent and cleaning agent. However, since a few years the price of CTC is steadily increasing and its price has more than doubled over the past two years. The reason for this is that India has reduced the supply considerably since 2005. Procurement is becoming increasingly difficult. More and more retailers have gone dry of this popular product. The situation is sure to get worse as the supply will shrink until the complete stop in December 2009. But why is India doing this?

CTC and the Ozone layer

Well, there are problems related to the use of CTC that are hard to ignore. After its use the solvent evaporates. Its vapours slowly rise up in the atmosphere, beyond an altitude of 15 kms. Up there it destroys the fragile layer of Ozone in the stratosphere, the very Ozone layer that protects our earth from harmful ultraviolet (UV-B) rays of the sun. Over decades, this process of destruction through ozone depleting substances like CTC and CFC has thinned the Ozone layer so severely that it is now popularly referred to as "Ozone hole" is already eight times the size of India. The damaged Ozone layer allows harmful U V-B radiation from the sun to reach our earth which can cause skin cancer, eye cataracts and it can harm the agricultural and marine produce, thus affecting the food chain severely. This obviously is a crisis not only for us but waiting to affect the future generations of this planet.

What about workers' health?

There have always been concerns about CTC's impact on worker's health. Workers with occupational exposure have long complained of pungent smell, dizziness and nausea. CTC is very toxic and is proven to cause cancer in animals and is a suspected human carcinogen.

Tackling the problem

To protect the Ozone layer India, along with 191 countries, has signed the Montreal Protocol on substances that deplete the Ozone Layer. The objective of this successful international environmental agreement, which celebrated its 20th anniversary in 2007, is to put an end to the depletion of the Ozone layer by systematically phasing-out all ozone depleting substances. The phase-out plan stipulates the total phase-out of CTC by 1st January 2010 and therefore the Government of India has instituted supply controls on CTC.

Every drop counts

People often feel that using a few litres of CTC per year should not cause much harm. However, the truth is, a single chlorine atom from CTC in its life span of 25-30 years, can destroy up to one hundred thousand ozone molecules. Hence, every drop of CTC saved makes our earth a safer place.

Assistance by GTZ Proklima

Alternatives that satisfy industry requirements in all aspects are not easy to find or assess. Several critical aspects need to be considered, ranging from performance to potential health and safety risks. German Technical Cooperation (GTZ) Proklima supports industries in the selection process, aiming to enable informed decision "on transition to safe alternatives under an international mandate, GTZ Proklima disseminates technical information of viable substitutes through technical publications and industry seminars - free of charge for users of CTC.

Health & safety

Health and safety plays an increasingly important role among the selection criteria. GTZ Proklima is screening substances to ascertain the precise risk levels. Industries need to consider particularly the risk on inhalation, risk on skin contact (i.e. intake via skin) and, to a smaller degree flammability. GTZ Proklima will shortly publish more detailed information on health and safety aspects concerning personal protective equipment as interaction with and feedback from industries progresses further.

Selected CTC uses

Application	Sector
Circulatory cleaning	RAC Sector
Nozzle cleaning	Oxygen refilling units
Electrical contact cleaning	General manufacturing industry
Film cleaning	offset and celluloid film making unit
Investment casting (Wax master patterns cleaning), & Diamond cleaning	Jewellery
Cleaning of spindles, cots and rollers	Yarn Spinning Mills
Millipore test	Foundries
Precision cleaning	Degreasing of Machined parts prior to taking high precision measurements
Flux cleaning	Electronic Industries
Stain removing	Textiles & Garment Industry
Armature Cleaning	Motor