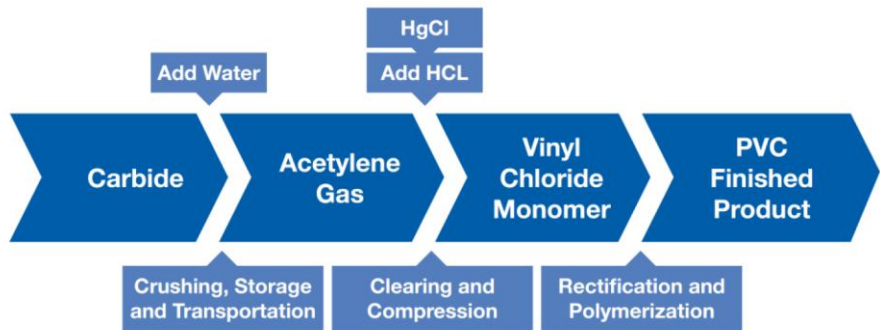
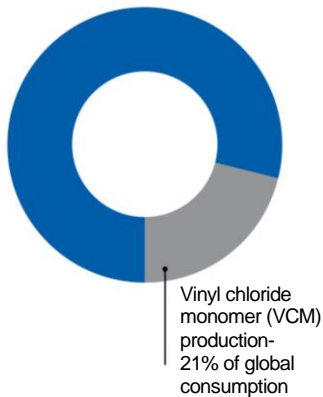


# Mercury in VCM and PVC Manufacturing

Poly vinyl chloride, or PVC is a type of plastic that is used for everything from water and sewer pipes to plastic toys and clothing. Vinyl chloride monomer, or VCM, is the building block of PVC.

## How Mercury Is Used



Most manufacturing of PVC around the world uses natural gas or petroleum as the “feedstock” or raw material from which the plastic is manufactured. However, most PVC manufacturing in China uses a different process that starts with coal as the feedstock. In 2009, the coal-based process was used at 94 of China’s 104 VCM plants, although these plants accounted for only about 63% of China’s PVC production, according to data provided by their trade association.

Some of the mercury catalyst is lost during this industrial process and must be continually replenished. It is poorly understood exactly where the lost mercury ends up and how it gets there, but we do know that PVC manufacturing consumed over 800 metric tons of mercury each year, based on how much mercury is purchased by the industry to replenish the catalyst. China’s PVC manufacturing industry represents one of the most significant uses of mercury in the world.

## Issues

Nearly all coal-based PVC manufacturing occurs in China, because in most countries, the petroleum-based alternative process is cheaper as it uses less energy and is superior environmentally. For China, the coal-mercury process is considered preferable domestically because it relies upon China’s own natural coal resource, rather than petro-chemical imports.

## Solutions

In China, coal will likely remain the principal PVC feedstock material. Thus a key to reducing mercury use in this sector is to find a less toxic but effective replacement catalyst. Significantly, several companies are now testing a mercury free catalyst in China, and will begin commercial-scale demonstration testing in the fall of 2012.

## Treaty Control Measures

Given the amount of mercury consumed by this sector, the treaty control measures should set a clear future policy direction for mercury free PVC production. The treaty should enable China to continue to produce PVC, but require the use of a mercury free process as soon as possible. This can be accomplished by phasing out the use of VCM but making allowances for continued use in the short term if the development of a mercury free catalyst takes longer than expected. Technical assistance should be made available to China as needed in removing mercury from their PVC manufacturing industry, in particular to find an effective non-mercury catalyst.