

Behavior of ultra fine particles of Titanium dioxide after intratracheal administration to rats

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Abstract

Titanium dioxide has penetrated the market as a photocatalysis and been used in products which are familiar with the public. For example, it was painted to sound abatement shields along the express ways, mixed in plastics on the dashboard of cars and painted to outward walls of buildings. However, the continued use of it may be detrimental to our health. The purpose of our work is to unveil the movement of ultra fine particle of titanium dioxide. The purpose of this paper is to report on our work. For the purpose of our work, we injected titanium dioxide with saline to rats and removed the brains, lungs, kidneys, livers, spleens and bloods to measure it. Then, we measured it in these organs. Particle induced X-ray Emission (PIXE) have been successfully employed as measurement of various metals in biomaterials. As a result, all organs didn't show significant accumulation compared with the control group. The saline added titanium dioxide was administered into the trachea, because it obviously increased in the lung exposed it. In conclusion, ultra fine particles of titanium dioxide didn't invade the body through the respiratory system. We consider that ultra fine particles will invade the body, so we suspect that the aggregation prevented infestation to the body.