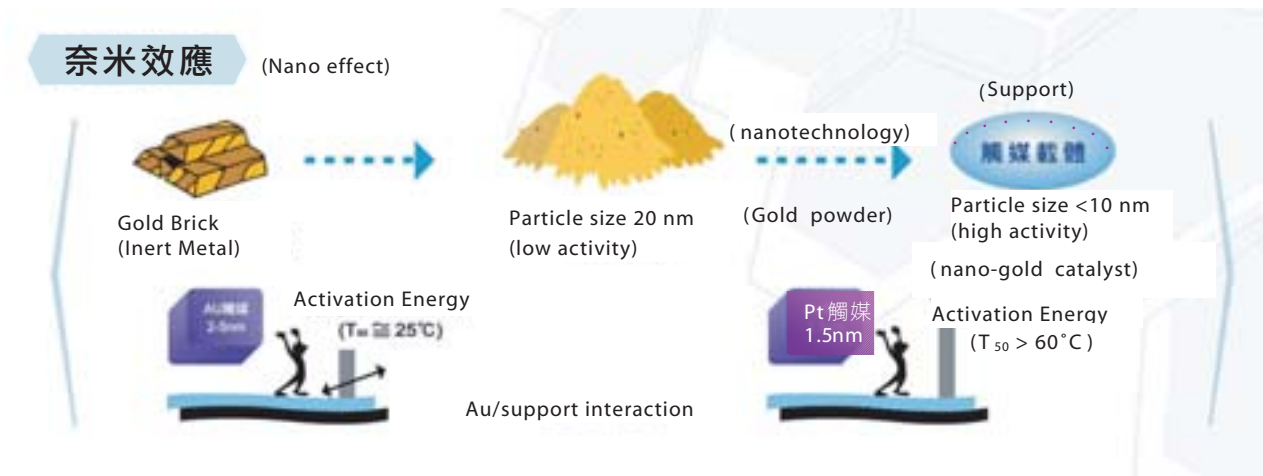


## Nano-Gold Catalysts 奈米金觸媒-能源／環保新觸媒

Nano-gold catalyst is gold nanoparticles supported on reactive metal oxides. When the particle size is under 10 nm, gold exhibits unusual catalytic features like fast reaction rate, high selectivity and low reaction temperature. ITRI has developed processes for the efficient production of nano-gold catalysts capable of converting CO to CO<sub>2</sub> at room temperature. This technology has led to successful product application such as durable masks for fire fighters. The useful life of such masks is extended from 30 minutes to 100 hours.

奈米金觸媒係指將金粒子高度分散於具反應性載體上，當金粒子小於10奈米便具有低反應溫度、高反應速率和高選擇性的獨特觸媒活性。工研院已開發出高效率的製程，所產製的奈米金觸媒可以在室溫下有效的將一氧化碳轉化為二氧化碳。此項技術已經應用在消防用的口罩上，其使用期限可由舊有技術的30分鐘延長到100小時。



### High efficiency nano-gold catalyst guideline

- Small gold particle size ( $D_{Au} \sim 2 \text{ nm}$ )
- High surface reactive support (BET surface  $> 150 \text{ m}^2/\text{g}$ )
- A correct preparation method: desired size and intimate contact

### UCL high efficiency nano-gold catalyst

- Condition: room temperature and CO concentration 0~10,000 ppm
- Efficiency: 500,000 ml/hr, g-cat, CO conversion  $> 99\%$

### Applications

- CO protecting mask
- A gas-operated hot-water heater protective equipment
- Gas sensor
- Industry waste gas
- PEM fuel cell

