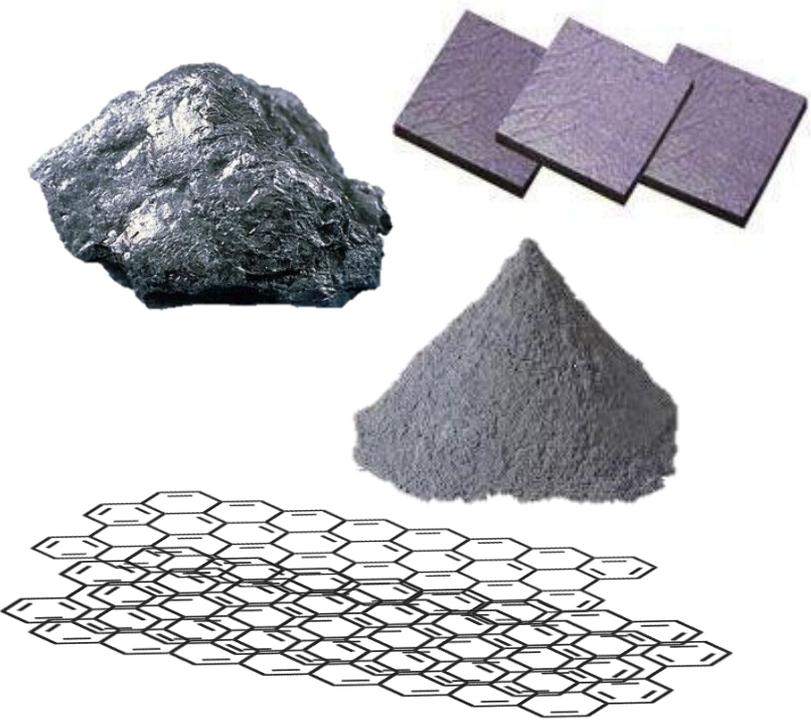


# Graphene Oxide

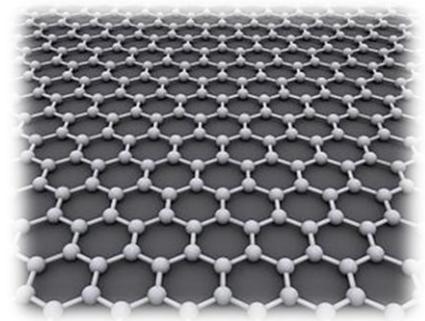
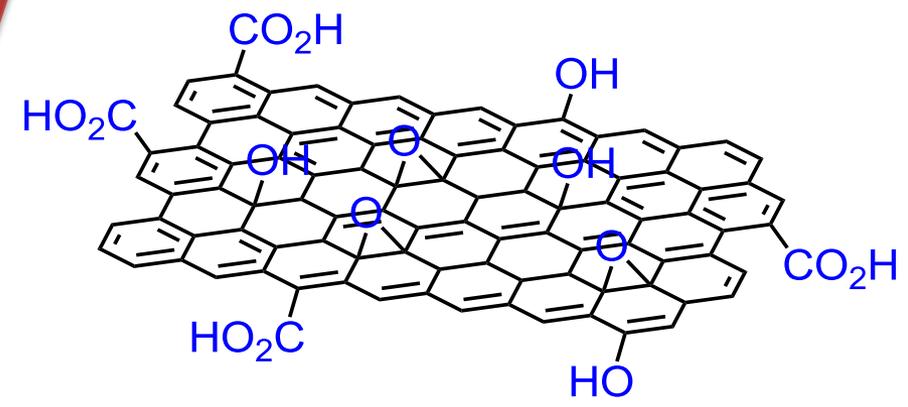
# Graphite

- Abundant
- Cheap
- Stable
- Natural & Artificial



# Graphene Oxide

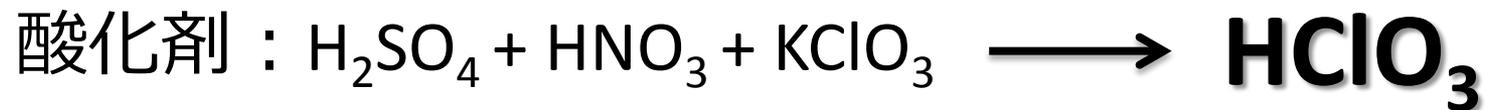
- Water soluble
- Single layer
- Oxygen functionality



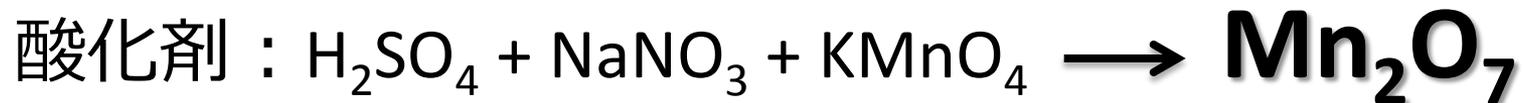
## Brodie法



## Staudenmaier法



## Hummers法

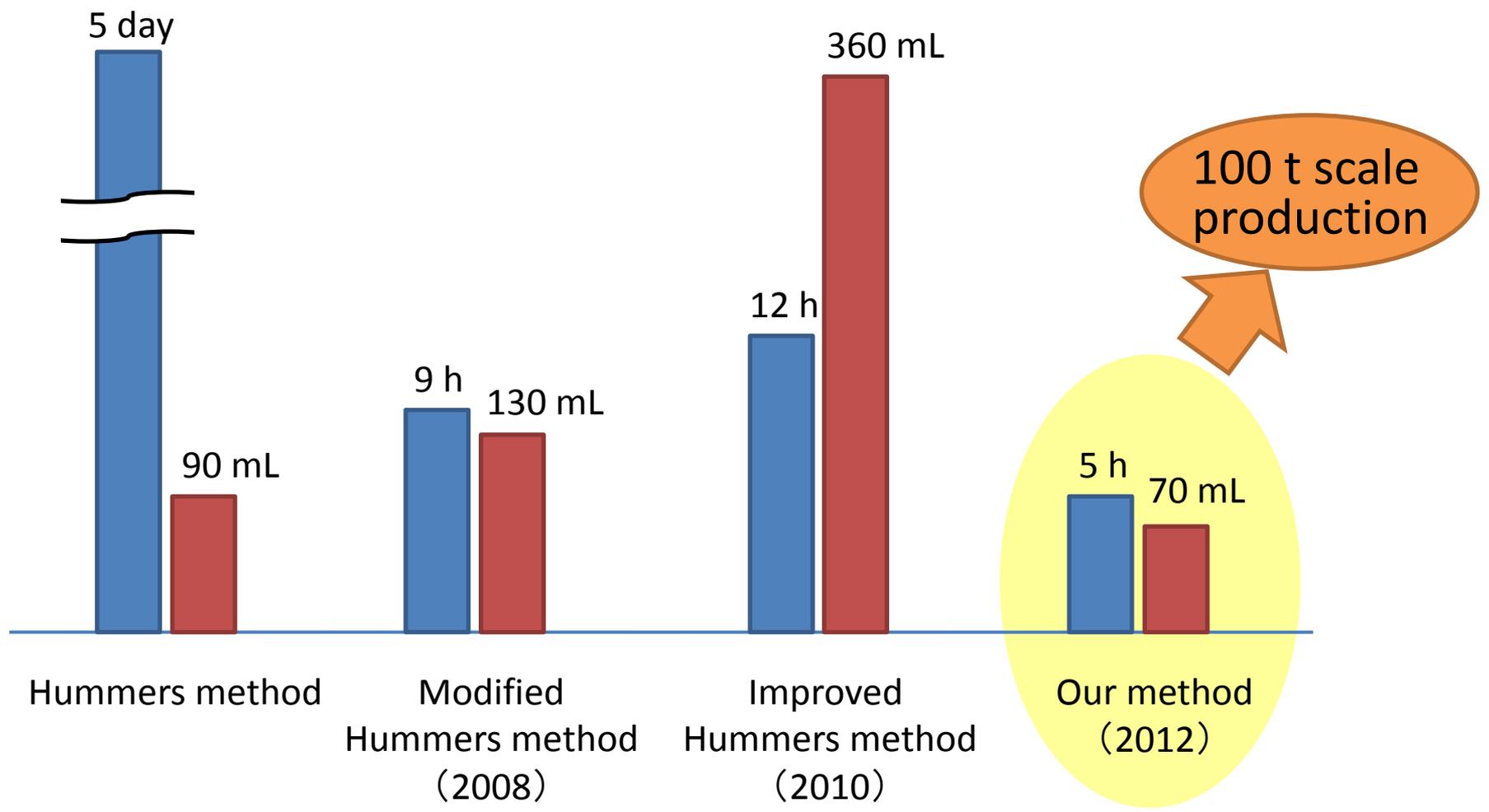


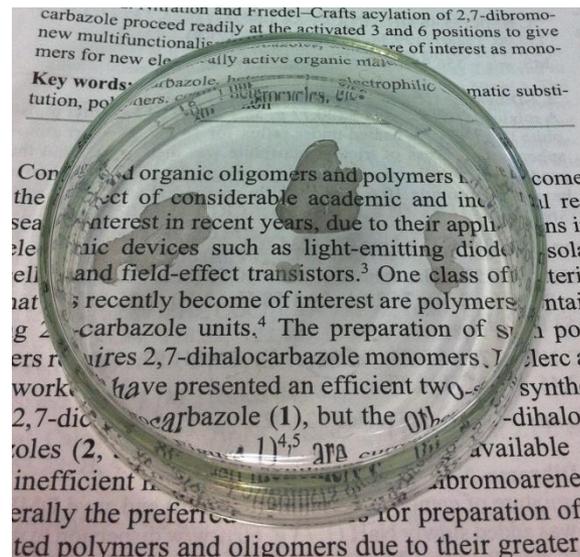
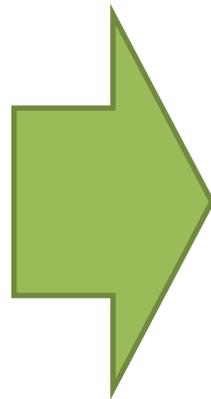
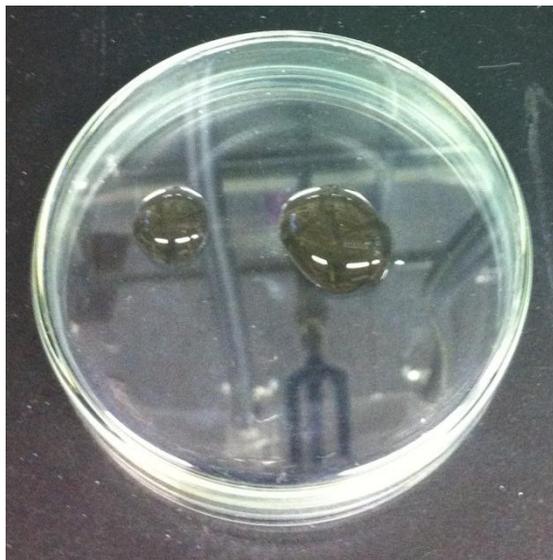
**再現性・安全性ともに高く、最もよく用いられる**

方法や酸化剤の量，反応時間によって  
得られる酸化グラフェンの性質は大きく異なる



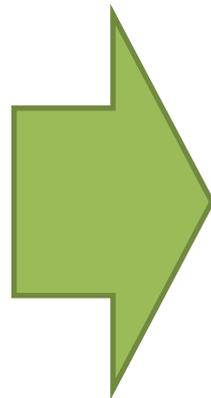
To prepare 3 g of Graphene oxide: ■ time, ■ H<sub>2</sub>SO<sub>4</sub> consumption





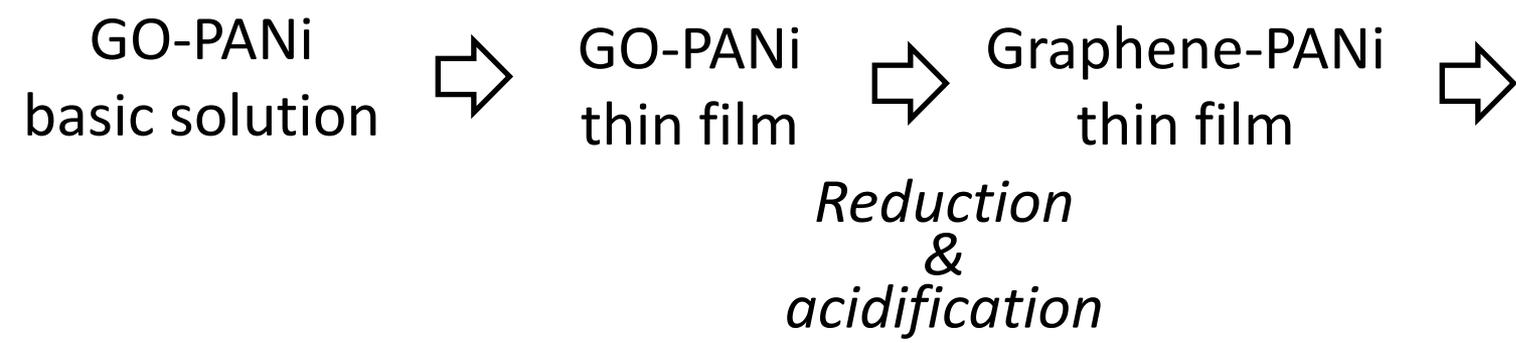
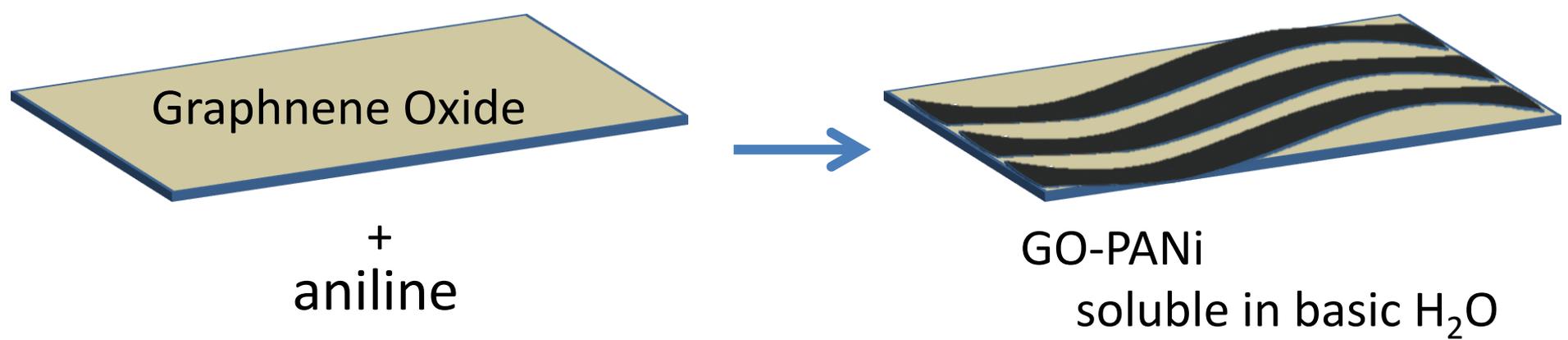
還元剤と混合して滴下

乾燥させると電気が流れる！



Graphene Oxide: acidic & oxidant

Aniline: polymerize under acidic & oxidative condition



## フレキシブル太陽電池



産総研

## 大型ディスプレイ



NASA

## タッチパネル



## 樹脂添加剤



## リチウムイオン電池電極

