*$_2$). Because of this reaction, the solution is inherently unstable and should only be prepared in quantities needed for immediate use. It should never be stored or placed in a sealed vessel since evolved gases will cause pressure build-up and possible explosion.*

## Hazards

Aqua regia solutions are hot, highly reactive and extremely corrosive. Aqua regia will readily oxidize to form toxic gases (NOCl, $NO_2$, and $Cl_2$). Improper handling may result in:

- Fire or explosion.
- Serious and permanent eye injury.
- Skin burns that can be deep and poor in healing.
- Corrosive effects in the respiratory tract (when inhaled).

Review the aqua regia Safety data sheet and acquire your lab-specific training before beginning work.

## Mandatory control measures

- Prepare and use aqua regia solution only in a properly functioning chemical fume hood.
- Wear a lab coat and chemical resistant apron.
- Aqua regia reacts violently with organic materials (e.g., plastics) and metals. Use only glass vessels to prepare solutions and to store waste.
- Never seal vessels containing aqua regia; accumulating acid vapours must be allowed to vent.
- **Prepare and use aqua regia solution only in a fume hood.** Position the fume hood sash between you and the reaction.
- Prepare solution as follows [3:1, v/v, ~35% HCl : 68% HNO

$_3$]:

o



*hloric acid. It is used to dissolve metals, such as*

*are caused by the formation of nitrosyl chloride*

## Waste handling

- Select a glass beaker to dilute the cooled aqua regia. Use a large enough beaker so that it will be only 2/3 filled once aqua regia is added. Add enough cold