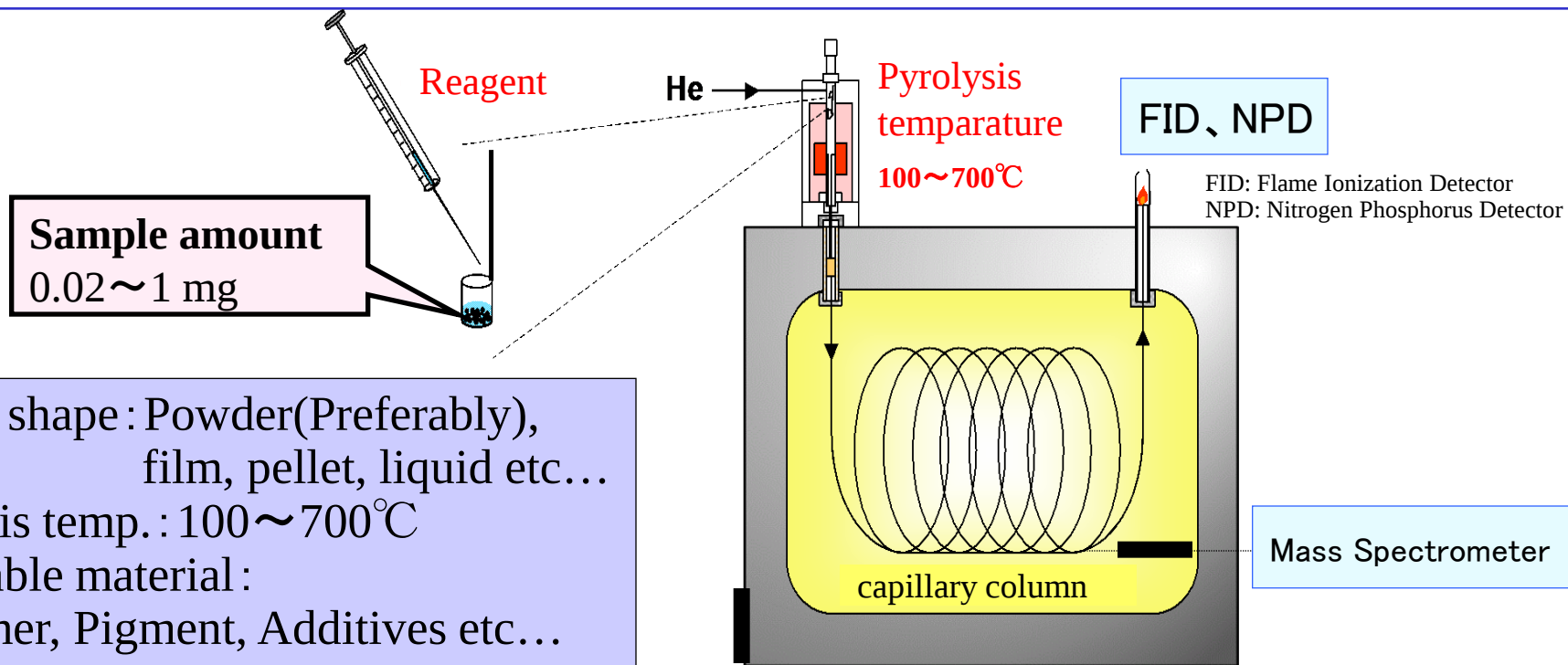


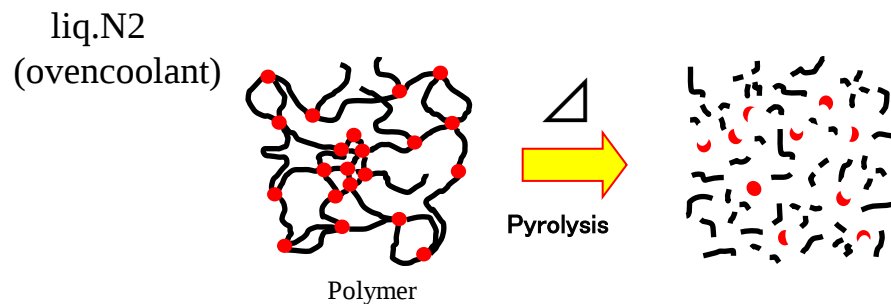
Pyrolysis-GC/MS



Sample shape: Powder(Preferably),
film, pellet, liquid etc...
Pyrolysis temp.: 100 ~ 700 °C
Applicable material:
Polymer, Pigment, Additives etc...

— Applications —

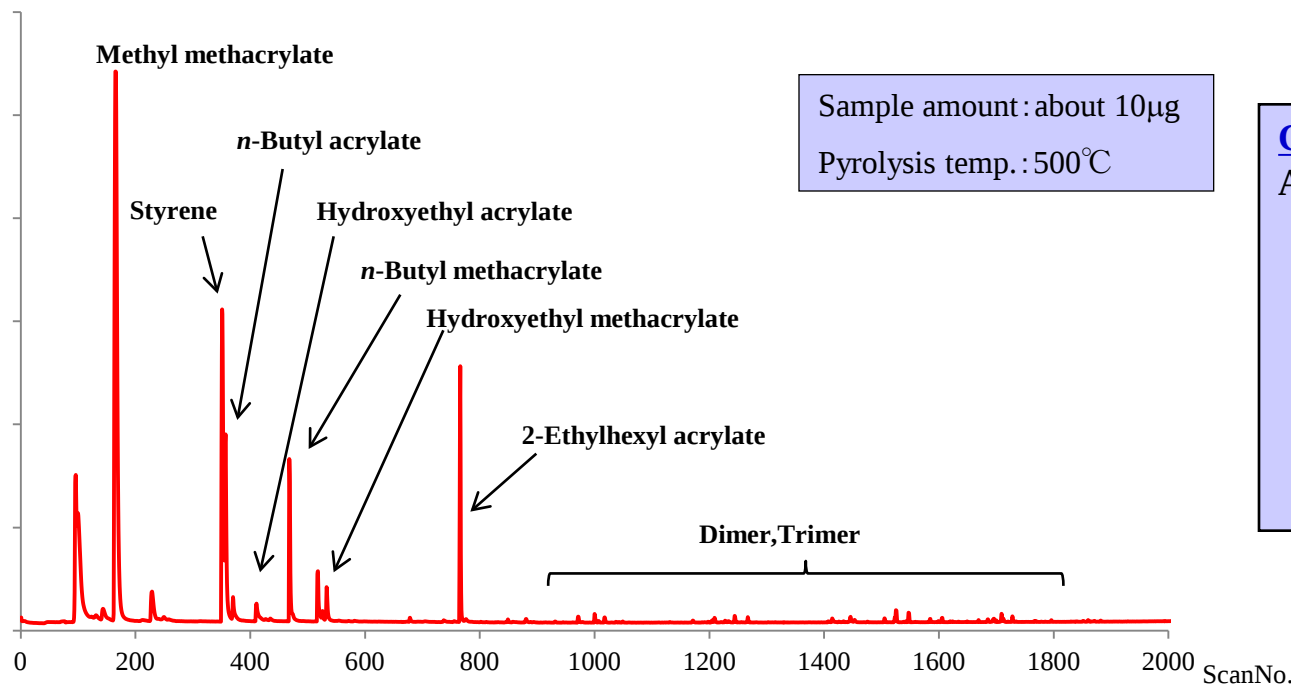
- ① Pyrolysis-GC/MS
- ② Double-shot pyrolysis-GC/MS
- ③ TMAH thermochemolysis-GC/MS



**Monomer(,terminal) of unknown-
polymer is identified from pyrolysates**

①Qualitative analysis of Acryl copolymer (Pyrolysis-GC/MS)

Pyrolysis-GC/MS



GC/MS Result

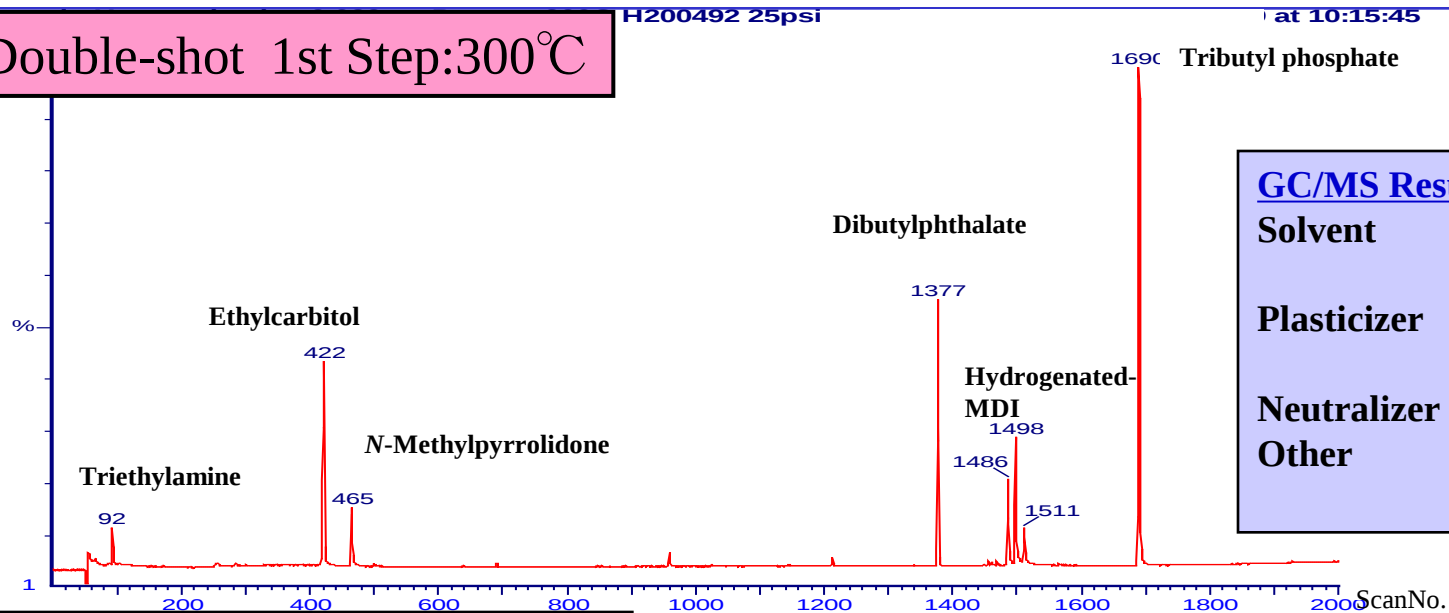
Acryl copolymer

- Methyl methacrylate
- Styrene
- n-Butyl acrylate
- Hydroxyethyl acrylate
- n-Butyl methacrylate
- Hydroxyethyl methacrylate
- 2-Ethylhexyl acrylate

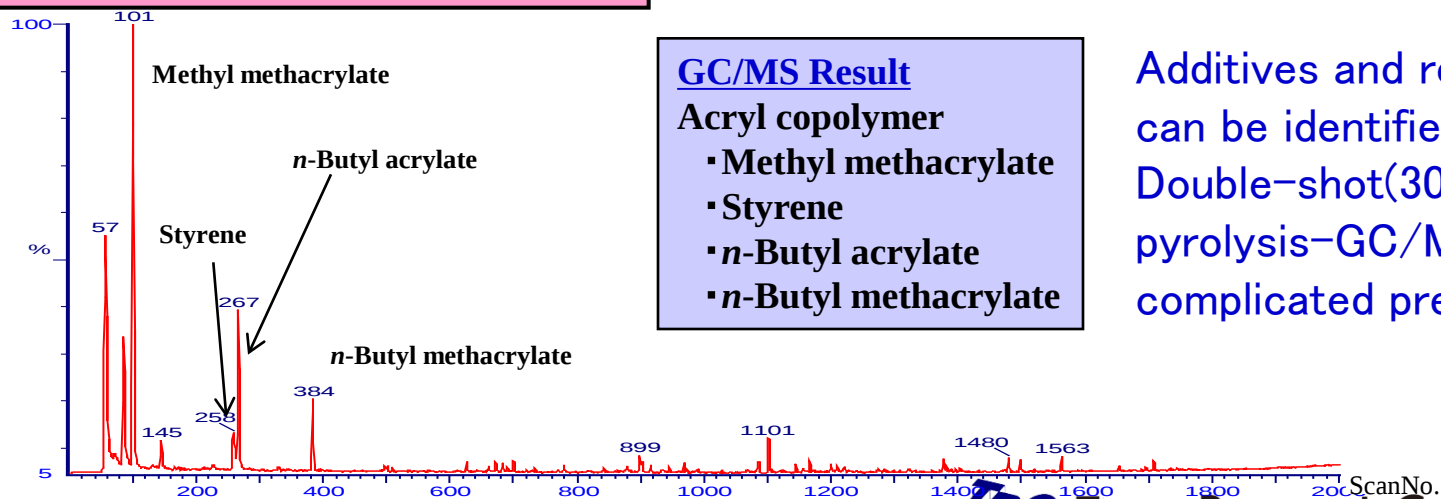
Pyrolysis-GC/MS is effective at the qualitative analysis of monomers of polymer in trace amount of acryl copolymer.

②Qualitative analysis of Cured coating (Double-shot pyrolysis-GC/MS)

Double-shot 1st Step:300°C



Double-shot 2nd Step:500°C



Additives and resin in cured coating can be identified respectively by Double-shot(300°C and 500°C) pyrolysis-GC/MS without complicated pretreatment.

Features of TMAH-thermochemolysis-GC/MS

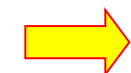
Analysis of constituent by TMAH-thermochemolysis-GC/MS

TMAH : TetraMethylAmmonium Hydroxide

condensation polymer



● : Cross-linked

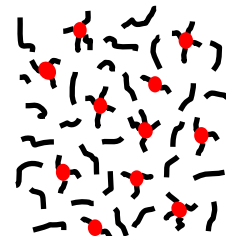
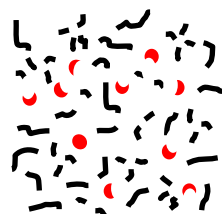


Pyrolysis

Reagent



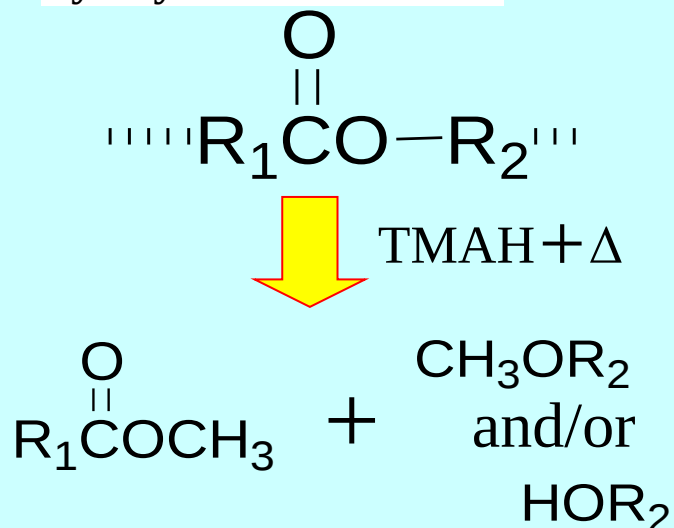
Pyrolysis
with TMAH



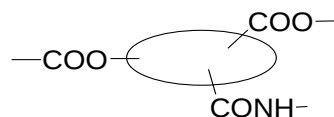
In the case of condensation type of polymer, structure of constituent monomer is degradation in the process of pyrolysis.

Pyrolysis-GC/MS with TMAH can provide the useful information.

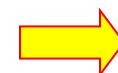
Pyrolysis with TMAH



● :

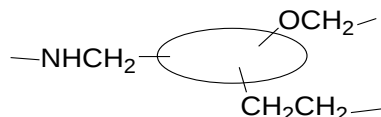


Ester and/or Amide



○ (GC/MS is available)

TMAH + Δ



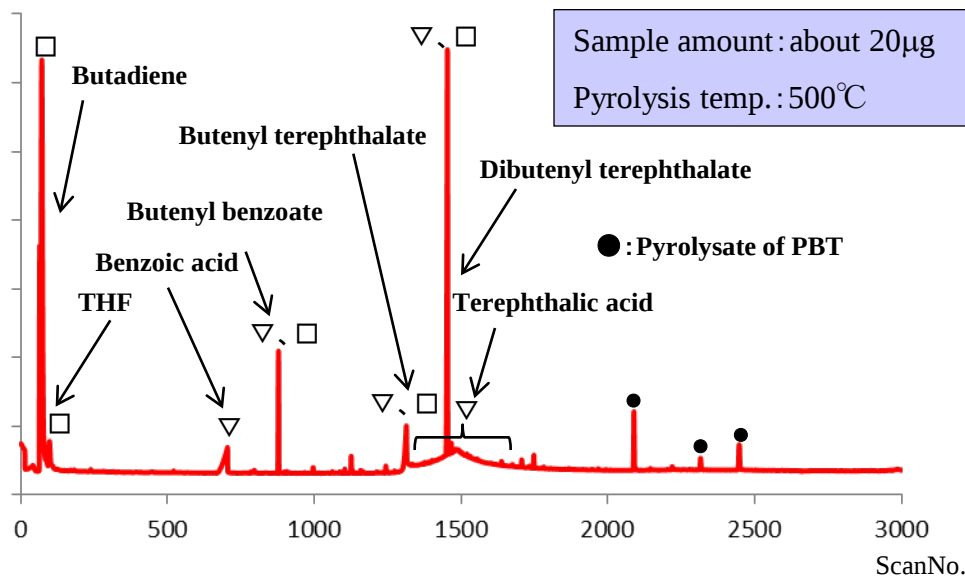
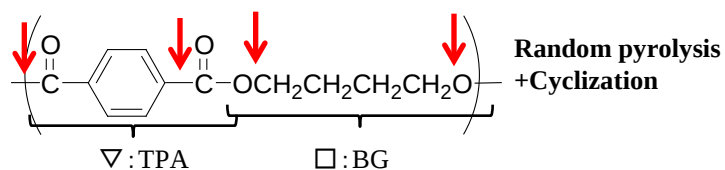
Amine, ether
and/or ethylene...



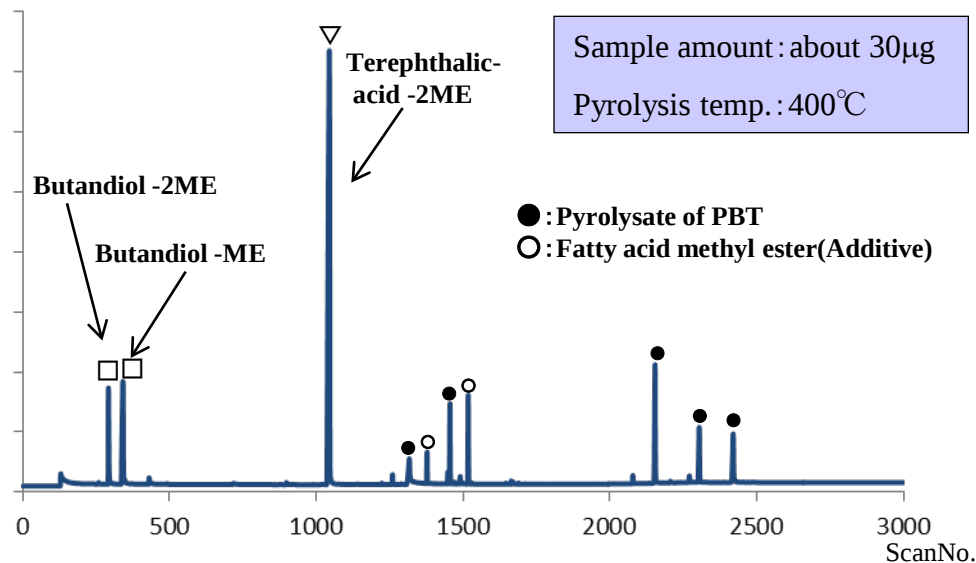
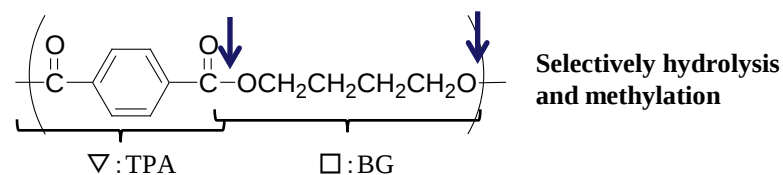
× (Same as the case of
Simple Pyrolysis)

③Qualitative analysis of PBT (TMAH–thermochemolysis–GC/MS)

Pyrolysis-GC/MS(500°C)



Pyrolysis-GC/MS with TMAH



In the case of condensation polymer, Hydrolysis and methylation in TMAH–thermochemolysis–GC/MS gives simple chromatogram and constituent monomer can be identified easily.