

# Organic Composition Analysis of Conductive Adhesive

Conductive adhesive is a complexed mixture composed of binder resin and conductive filler, being widely used in the field of electronic and electrical materials. It is important to clarify composition of the resin for information of properties such as adhesive strength, heat resistance, etc. Hereby we introduce an example of organic composition of a conductive adhesive clarified by advanced separation/analysis technology in detail.

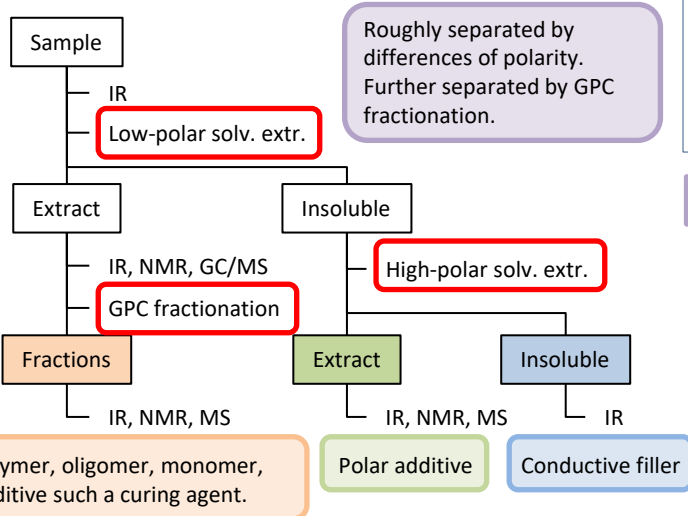
## Strength of our organic composition analyses

A major component of the sample is an inorganic substance, and binder resin is composed of multiple compounds. It is generally difficult to analyze qualitatively and quantitatively all components in such an unknown sample.

	Methods	Outputs
In general	IR, PyGC/MS, GC/MS, LC/MS	Chemical structure of main components.
Toray Research Center	Solv. extr., GPC frac., IR, NMR, PyGC/MS, LC/MS, GC/MS, etc.	Structure and content ratio of all components.

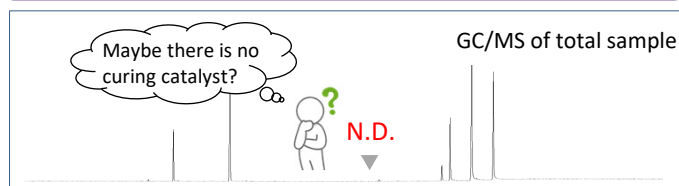
We clarify small amount of important additive by accumulated and developed for many years so far.

## Analysis flowchart

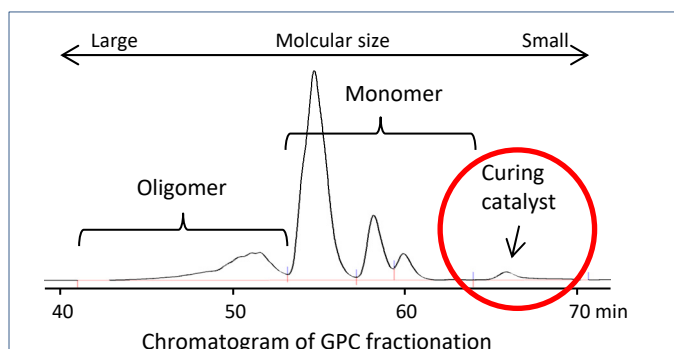


## How effective is GPC fractionation

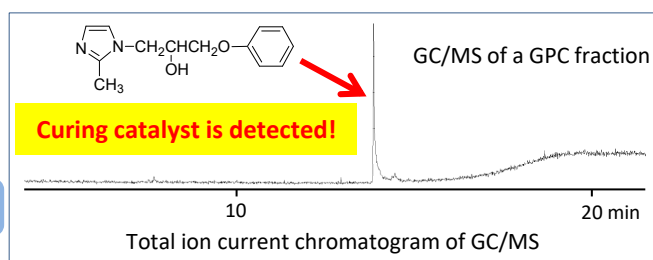
Small amount of catalyst is not detectable by GC/MS of total sample



GPC fractionation can also separate small amount of component by differences of molecular size



Can be qualified and quantified by separating target component to analysis



## Result of organic composition analysis of conductive adhesive

Category	Compound	Content ratio
Epoxy oligomer	Oligomer composed of Bisphenol F diglycidyl ether	7 mass%
Monomer	Bisphenol F diglycidyl ether	26 mass%
	2-s-Butylphenyl glycidyl ether	9 mass%
	2-Methylphenyl glycidyl ether	3 mass%
Curing catalyst	3-(2-Methyl-1-imidazolyl)-1-phenoxy-2-propanol	0.7 mass%
Conductive filler	Ag	54 mass%