IATROSCAN TH-10

INSTRUMENT APPLICATION

No. 7

Precautions in Performing Analysis

IATROSCAN ANALYSIS

7

Precautions in Performing Analysis

There are several precautions to be observed for success-operation of IATROSCAN analysis. This brochure describes these points in the order of general analytical procedure.

1. Developing Solvent

(1) Amount of Solvent Used

If the distance between the position of sample spotted on CHROMAROD and the level of developing solvent varies, different separation behavior will result. Always be sure to place a constant volume of developing solvent in the developing chamber as shown in the Table below.

Type of Developing Chamber	Amount of Solvent
DT-150	70 ml
DT-250	Inside solvent reservoir: 50 ml
	Outside solvent reservoir: Appropriate amount
	When solvent reservoir is not used: 180 ml

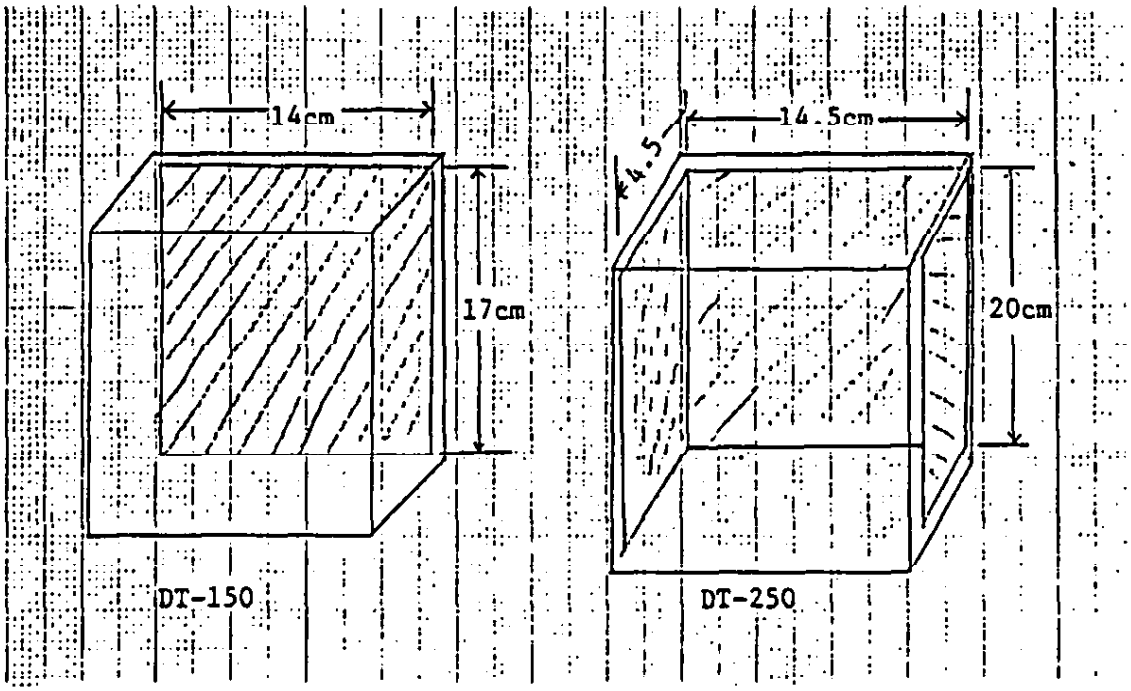
(2) Saturation of Developing Chamber with Solvent Vapor

When analyzing by the saturation development method, the developing chamber must be saturated with the vapor of solvent used for development

in order to achieve satisfactory separation with high reproducibility. To accomplish this, perform the operations given below.

① Erect filter paper inside the developing chamber.

- DT-150: Erect a sheet of filter paper along one side of the developing chamber, wet it with the developing solvent to be used for analysis, and keep the chamber tightly sealed.
- DT-250: Erect a sheet of filter paper along three sides of the developing chamber as shown in the figure below, wet it with the developing solvent to be used for analysis, and keep the chamber tightly sealed.



② Wet the erected filter paper again with the solvent immediately before starting development.

As time passes, the solvent vapor filled inside the developing chamber tends to move downward, resulting in poor

saturation in the upper portion. Wet the filter paper again with the solvent immediately before starting development to ensure complete vapor saturation.

2. Sample Spotting

Minimizing the size of sample spot is a must for successful separation. The following points should be kept in mind in the spotting procedure.

(1) Solvent for Sample

Select a solvent of the lowest possible boiling point and polarity among those which have sufficient dissolving power for the particular sample. The spot tends to spread more when a solvent of higher boiling point or polarity is used. Generally, hexane, benzene and chloroform are preferable solvents.

(2) Spotting Technique

Spot the sample solution in several portions to minimize the size of spot. When the solvent used does not readily evaporate, use a hand dryer or the like to blow it off after each spotting.

(3) Removal of the Solvent

The solvent for sample must be completely removed after spotting. Be particularly careful when a high-boiling solvent is used.

3. Regulation of Activity of CHROMAROD

The activity of CHROMAROD varies with the amount of moisture contained in the adsorbent (silica gel, alumina), and must be regulated

before use because it influences the degree of separation and reproducibility.

The activity can be regulated by the constant moisture method[1] or the vacuum drying method[2]. The information on these methods is available upon request.

1) IATROSCAN ANALYSIS 1

2) CHROMAROD Activity Regulation by Vacuum Drying

4. Development

Be sure to saturate the developing chamber with the vapor of solvent before starting development, as describe above. When DT-150 is used, it is advisable to rest the rod holder against the wet filter paper to ensure satisfactory solvent adsorption on CHROMAROD. When hanging development is performed in DT-250, 5 ~ 10 minutes preadsorption is necessary for successful operation.

5. Removal of Solvent

Developing solvent, if left adsorbed on CHROMAROD, will fail to give a normal recorder baseline. Usually, the solvent is removed by heating CHROMAROD in an oven dryer; in this case it is advisable to evaporate the solvent attached to the rod holder with a hand dryer or the like before placing CHROMAROD in the oven in order to achieve complete removal of solvent.

6. Detection

The step of detection requires no special precaution; however, check the hydrogen flow rate, air flow rate and contamination of burner from time to time.