

## TLC OF NITROAROMATIC COMPOUNDS

	<u>Separated Compounds</u>	<u>Absorbent Material</u>	<u>Developing Solvent</u>	<u>Visualization of R<sub>f</sub> Values</u>	
1	m-MNT, DNT isomers (except 2,3-) 2,4,6-, 2,4,5-, 2,3,4-TNT 4,6-Dinitrobenzyl alcohol 2,4,6-Trinitrobenzyldehyde 2,4,6-Trinitrobenzoic acid	Silica gel G with incorporated Zn dust	2 Dimensional: 1. Pet Ether-Ethyl Acetate (17:3) 2. Pet Ether-1,2 Dichloroethane (4:1)	p-DEAB (diethylamino-benzaldehyde)  **NOTE** 2,6 & 3,5-DNT were not resolved	
2	MNT, DNT & TNT isomers m-DNB & TNB 2,4,6-Trinitrobenzyl alcohol 2,4,6-Trinitrobenzaldehyde 2,4,6-Trinitrobenzoic acid 2,4,6-Trinitrobenzene TNX	Silica gel F <sub>254</sub> (with starch binder)	a. Benzene-Cyclohexane-Ethyl Acetate (10:9:1) b. Benzene-Diethyl Ether-Ethanol (5:3:2) c. 2Dimensional: 1. Benzene-Cyclohexane-Ethyl Acetate (10:9:1) 2. Benzene-Cyclohexane (3:1)	Ethylenediamine  **NOTE** The 2 dimensional system c gave the best overall separation.	
3	61 nitroaromatic compounds & aromatic amines including PA, DPA, m-DNB	Silica gel G	a. Benzene b. Benzene-MeOH (4:1) c. Benzene-Dioxane-Acetic acid (90:25:4)	SnCl <sub>2</sub> followed by p-DMAB. For amines only p-DMAB.	
4	MNT, DNT, TNT	Silica gel F (microplate)	Cyclohexane-Chloroform (7:3)	UV	
5	Mono- & Dinitro-derivatives of biphenyl	Silica gel GF <sub>254</sub>	a. Hexane-Acetone (4:1 or 3:1) b. Pet Ether-Ethyl Acetate (5:1)	UV	

6	TNB, 3,5-Dinitroiodobenzene & four polynitro derivatives of biphenyl	Silica gel G acid washed	Toluene-Benzene-n-Pentane-Acetone (8:8:4:1)	EDA/DMSO (Glover & Kayser 1968)	
7	2,3,4- & 2,4,6-TNT 1,2-DNB, 2,4,6-TNA RDX, PC, TNB & some of its derivatives	Silica gel HF <sub>254</sub>	a. Benzene-Hexane-Pentane (5:4:1) b. Benzene-Hexane-Pentane-Acetone (5:4:1:1)	UV	
8	2,4,6-TNT, 1,4-Dipicryl Benzene, 1,3-Diamino-2,4,6-TNB & their composition products	Silica gel HF <sub>254</sub>	a. For TNT: Benzene-Hexane (1:1) b. For the other: Benzene-Ethyl Acetate-Hexane-Pentane (9:1:1:1)	UV followed by the EDA/DMSO color reaction	
9	2,4-DNT, TNT, m-DNB, TNA & tetryl	Silica gel G	Cyclohexane-Chloroform (1:1) saturated with anthracene	Colored spots by $\pi$ complex formation with anthracene	
10	m-DNB, TNB, TNT, tetryl, picryl chloride, 2,4-Dinitrochlorobenzene	Silica gel G (with 3% $\alpha$ -naphthylamine)	Toluene-1,2-Dichloroethane (9:1) containing 3% $\alpha$ -naphthylamine	Colored spots by $\pi$ complex formation with $\alpha$ -naphthylamine	
11	m-DNB, TNB, TNT, TNA, tetryl, picryl chloride, 2,4-Dinitrochlorobenzene, picramide, hexyl	a. Silica gel G b. Silica gel G /Magnesium Silicate (1:1) a & b with 3% amine	a. Chlorobenzene b. Xylene c. Carbon Tetrachloride d. Xylene-1,2-dichloroethane (9:1) e. Xylene-Pet Ether (4:1) a-e with 3% amine	Colored spots by $\pi$ complex formation with o-toluidine, N,N-Dimethylaniline or m-chloroaniline	
12	m-DNB, TNB, TNT, TNA, TNP, tetryl, picryl chloride,	a. Silica gel G b. Magnesium	a. Chlorobenzene-1,2-Dichloroethane (9:1)	Colored spots by $\pi$ complex formation with	

	2,4-Dinitrochlorobenzene, Picramide Hexyl, 2,4-DNA, 2,4-DNP	Silicate c.Alumina a-c with 2% amine	b.Pet Ether-Ethyl Acetate (19:1 or 9:1) c.Carbon Tetrachloride a-c with 2%amine	DPA, N,N-Diethylaniline or p-Anisidine.	
13	a.2,2',4,4',6,6'-Hexanitrodiphenylsulfide & Picramide b.a.2,2',4,4',6,6'-Hexanitrodiphenylsulfide & Tetryl c.a.2,2',4,4',6,6'-Hexanitrodiphenylsulfide & 2,2',4,4'-Tetranitrodiphenylsulfide d. TNB & TNA e. TNB & TNP f. TNT & Picryl Chloride	a.Silica gel G b.Magnesium Silicate a & b with 1% amine	a.Chlorobenzene-1,2-Dichloroethane (9:1) b.Xylene-1,2-Dichloroethane (9:1) c.Chloroform-Cyclohexane (3:1) d.Xylene-Pet Ether (4:1) a-c with 1% amine	Colored spots by $\pi$ complex formation with aniline or phenylenediamine. **NOTE** a.Separation only between the two components of the binary mixture b.For quantitation a 2 dimensional TLC was used, using solvents "a", "b" or "c" for the first direction & "d" for the 2nd	
14	DNT, TNT, TNB, Tetryl, PA, Hexyl	Silica gel G	Chloroform	5% DPA in ethanol	