

## SFC Columns for Green Chromatography

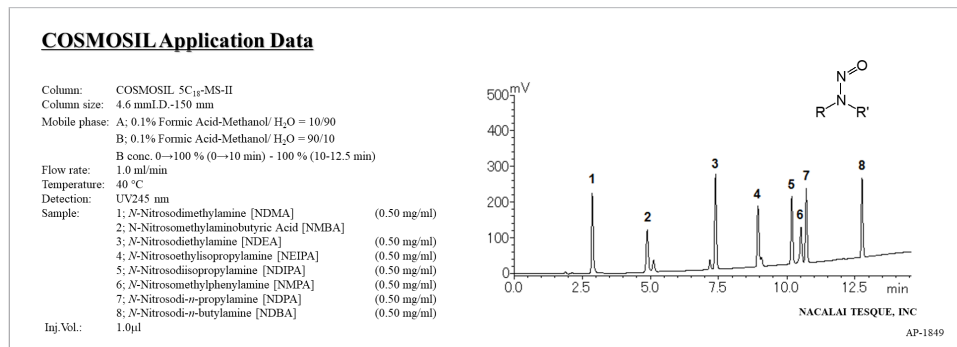
# COSMOSIL SFC Columns

Supercritical fluid chromatography (SFC) primarily uses supercritical carbon dioxide (CO<sub>2</sub>) as the mobile phase. It has been promoted as a greener alternative to high-performance liquid chromatography (HPLC), which comparatively uses larger volumes of organic solvents that may be hazardous to humans and can also carry environmental burdens that vary by solvent. Additionally, recent disruptions in petrochemical supply chains may raise solvent prices or constrain availability.

### Save solvents with SFC

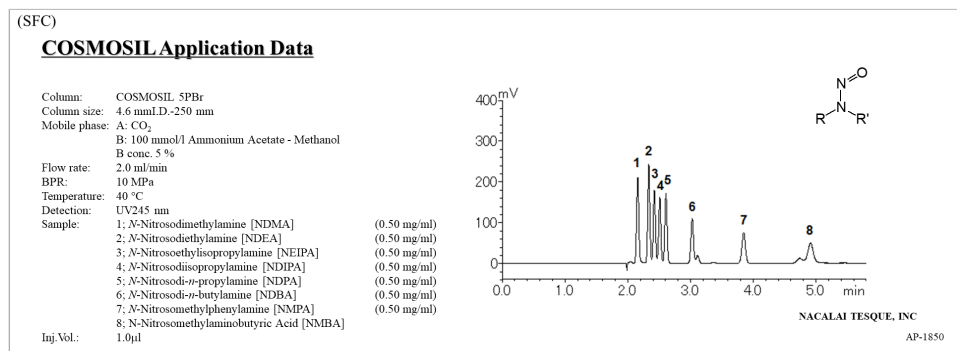
#### Example: Analysis of nitrosamines

##### HPLC analysis

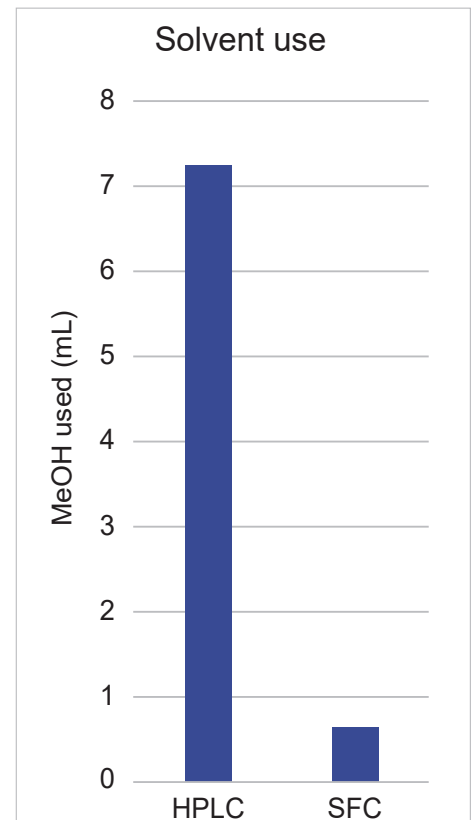


Solvent use (MeOH): approx. 7.25 mL per analysis

##### SFC analysis



Solvent use (MeOH): approx. 0.6 mL per analysis (save 92%)



## Products

Our columns cover a wide range of selectivity, enhancing the versatility of your SFC separations.

### Category I: Columns for mid- to high-polarity compounds

For these compounds, a high-polarity stationary phase is suitable. More polar compounds are retained longer.

Product Name	Bonded Phase	Features
COSMOSIL PY	Pyridinyl group	Similar selectivity to 2-ethylpyridine; strong retention in general
COSMOSIL HP	3-Hydroxyphenyl group	Different selectivity from PY; strong retention for basic compounds
COSMOSIL Diol	Diol group	Less effect from ionic interaction

### Category II: Columns for low-polarity compounds

For these compounds, a low-polarity stationary phase is suitable.

Product Name	Bonded Phase	Features
COSMOSIL Cholester	Cholesteryl group	Longer retention and better separation than C <sub>18</sub>

### Category III: Columns for SFC-specific separations

In supercritical fluid chromatography (SFC), secondary interactions such as  $\pi$ - $\pi$  and dispersion force\* are stronger compared to high-performance liquid chromatography (HPLC). As a result, these columns are capable of unique separations in SFC.

Product Name	Bonded Phase	Features
COSMOSIL $\pi$ MAX	Pyrenylethyl group	Stronger $\pi$ - $\pi$ interaction than phenyl column
COSMOSIL PBr	Pentabromobenzyl group	Unique separations using dispersion force*

\* Dispersion force: London dispersion force is a weak intermolecular force that results from dipoles temporarily induced from random unsymmetrical electron positions in two adjacent atoms, also known as "instantaneous dipole-induced dipole force". It is present in all molecules, regardless of whether they are polar or non-polar. Compounds with high polarizability have stronger dispersion force.

## Ordering information

COSMOSIL SFC Columns												
Bonded phase	PY		HP		Diol		Cholester		$\pi$ MAX		PBr	
Particle size	3 $\mu$ m	5 $\mu$ m	3 $\mu$ m	5 $\mu$ m	3 $\mu$ m	5 $\mu$ m	3 $\mu$ m	5 $\mu$ m	3 $\mu$ m	5 $\mu$ m	3 $\mu$ m	5 $\mu$ m
Column size (mm I.D. x mm)	3 $\mu$ m	5 $\mu$ m	3 $\mu$ m	5 $\mu$ m	3 $\mu$ m	5 $\mu$ m	3 $\mu$ m	5 $\mu$ m	3 $\mu$ m	5 $\mu$ m	3 $\mu$ m	5 $\mu$ m
2.1×150	13557-01	13844-31	13559-81	13845-21	21567-21	18253-21	18556-61	13785-11	19596-11	18696-31	18875-81	13561-31
4.6×250	13558-91	13846-11	13560-41	13854-01	/	18252-31	/	13784-21	/	18372-61	/	13783-31
10×250	/	13780-61	/	13776-31	/	18678-71	/	13848-91	/	18679-61	/	13849-81
20×250	/	13782-41	/	13778-11	/	18869-71	/	13852-21	/	19587-31	/	13853-11
Guard column 10×20	/	13781-51	/	13777-21	/	/	/	13850-41	/	18867-91	/	13851-31

Other packing material and column size are available, please contact us.

#### (Pressure limit)

- 2.1 mm I.D., 4.6 mm I.D., 10.0 mm I.D. : 30 MPa
- 20.0 mm I.D. : 23 MPa

For research use only, not intended for diagnostic or drug use.

