



# Applications for Post-Column Derivatization with the Pickering-System PINNACLE PCX

**PICKERING  
LABORATORIES**

**Please Note: Every System can be also used for different applications; it's done with a simple and uncomplicated change of the reactorcoil and configuration changes in the software. (e.g. shut off one syringe pump, change the flow rate); Usually also column and eluants should be exchanged. So you can use the system for many different applications.**

## Amino Acids and Biogenic Amines

Application	Gradient / Column / Eluents / Detector	Product No., Reactor Size	Pickering-Kit	Derivatization Reagent(s)
<b>Amino Acid Analysis of <u>Protein Hydrolysates</u></b> in 30 min.	quaternary gradient Na <sup>+</sup> -Ion Exchange Column 3 Na <sup>+</sup> -Buffer, 1 Regenerant UV-Detector (Trione) or Fluorescence-Detector (OPA)	1153-1022, 0.5 mL Trione or 1153-1012, 0.15 mL OPA	0352-0058, (T200)* 0352-0057 (T100C) * 0352-0059 (OPA)	<b>Single-Step Reaction:</b> Trione (ninhydrin) or o-phthaldialdehyde (OPA) / mercaptoethanol-derivative
<b>Amino Acid Analysis of <u>Collagen Hydrolysates</u></b> in 30 min.	quaternary gradient Na <sup>+</sup> -Ion Exchange Column 3 Na <sup>+</sup> -Buffer, 1 Regenerant UV-Detector (Trione) or Fluorescence-Detector (OPA)	1153-1022, 0.5 mL Trione or 13153-1012, 0.15 mL OPA	0352-0062, (T200) 0352-0061 (T100C) 0352-0063 (OPA)	<b>Single-Step Reaction:</b> Trione (ninhydrin) or o-phthaldialdehyde (OPA) / mercaptoethanol-derivative
<b>Amino Acid Analysis of <u>Oxidized Feed Hydrolysates</u></b> in 33 min.	quaternary gradient Na <sup>+</sup> -Ion Exchange Column 3 Na <sup>+</sup> -Buffer, 1 Regenerant UV-Detector (Trione) or Fluorescence-Detector (OPA)	1153-1022, 0.5 mL Trione or 13153-1012, 0.15 mL OPA	0352-0021, (T200) * 0352-0020, (T100C) * 0352-0022, (OPA)	<b>Single-Step Reaction:</b> Trione (ninhydrin) or o-phthaldialdehyde (OPA) / mercaptoethanol-derivative
<b>Amino Acid Analysis of <u>Native Samples</u></b> in 70 min.	quaternary gradient Li <sup>+</sup> -Ion Exchange Column 2 / 3 Li <sup>+</sup> -Buffer, 1 Regenerant UV-Detector (Trione) or Fluorescence-Detector (OPA)	1153-1022, 0.5 mL Trione or 1153-1012, 0.15 mL OPA	0352-0007, (T200) * 0352-0006, (T100C) * 0352-0008, (OPA)	<b>Single-step Reaction:</b> Trione (ninhydrin) or o-phthaldialdehyde (OPA) / mercaptoethanol-derivative
<b>Biogenic Amines</b>	binary gradient K <sup>+</sup> -Ion Exchange Column 1 K <sup>+</sup> -Buffer, 1 Regenerant Fluorescence-Detector	1153-1012, 0.15 mL	0352-0040	<b>Single-Step Reaction:</b> o-Phthaldialdehyd (OPA) / Mercaptoethanol- Derivat

\* T200 Trione (Ninhydrin) with a shelf life of 3 month, T100C Trione (Ninhydrin) with a shelf life of 12 month.



# Applications for Post-Column Derivatization with the Pickering-System PINNACLE PCX

**PICKERING  
LABORATORIES**

## *Mycotoxins*

Application	Gradient / Column / Eluents / Detector	Product No., Reactor Size	Pickering-Kit	Derivatization Reagent(s)
<i>Aflatoxins</i>	isocratic, RP-C18-Column Methanol, Acetonitrile/Water Fluorescence-Detector	1153-1032, 1.4 mL	0352-0050	<b>Single-Step Reaction:</b> aqueous iodine solution
<i>Fumonisin</i>	binary gradient, RP-C18-Column Methanol/Phosphatbuffer Fluorescence-Detector	1153-1012, 0.15 mL		<b>Single-Step Reaction:</b> o-phthalaldehyde (OPA) / mercaptoethanol- derivative
<i>Ochratoxin A</i>	isocratic, RP-C18-Column Acetonitrile/Methanol/Water/ Acetic Acid Fluorescence-Detector	1153-1022, 0.5 mL		<b>Single-Step Reaction:</b> aqueous ammonia solution
<i>Trichothecenes (DON/NIV)</i>	isocratic, RP-C18-Column Acetic Acid/Acetonitrile Fluorescence-Detector	1153-1072, 1.2/1.6 mL		<b>Two-Step Reaction:</b> 1) NaOH 2) 2,4-pentadion in buffer

## *Pesticide*

Application	Gradient / Column / Eluents / Detector	Product No., Reactor Size	Pickering-Kit	Derivatization Reagent(s)
<i>N-Methyl Carbamates (Insecticides)</i>	binary gradient RP-C18-Column Water/Methanol or Water/Acetonitrile Fluorescence-Detector (OPA)	1153-1052, 0.5 mL	0352-0002 (23+ Components) 0352-0003, (EPA Methode 531.1) 0352-0009 (EPA Methode 531.2) 0352-0004, (AOAC-Methode 985.23)	<b>Two-Step Reaction</b> 1) NaOH 2) o-phthalaldehyde (OPA) / mercaptoethanol- derivative
<i>Glyphosate / AMPA (Herbicide)</i>	binary gradient K <sup>+</sup> -Ion-Exchange-Column 1 K <sup>+</sup> -Buffer, 1 Regenerant Fluorescence-Detector (OPA)	1153-1052, 0.5 mL	0352-0010	<b>Two-Step Reaction</b> 1) NaOCl 2) o-phthalaldehyde (OPA) / mercaptoethanol- derivative
<i>Paraquat / Diquat</i>	ternary gradient K <sup>+</sup> -Ion-Exchange-Column 2 K <sup>+</sup> -Buffer, 1 Regenerant UV-Detector	1153-1012, 0.15 mL	0352-0042 (only for water analysis)	<b>Single-Step Reaction</b> sodium hydrosulfite solution



# Applications for Post-Column Derivatization with the Pickering-System PINNACLE PCX

**PICKERING  
LABORATORIES**

## Antibiotics

Application	Gradient / Column / Eluents / Detector	Product No., Reactor Size	Pickering-Kit	Derivatization Reagent(s)
<b>Streptomycin</b>	isocratic, RP-C18-Column Ion-Pair Reagent, Buffer Fluorescence-Detector	1153-1052, 0.5 mL	0532-0041	<b>Two-Step Reaction</b> fluorescamine or naphthoquinone-sulfonic acid / NaOH
<b>Aminoglycoside Antibiotics</b>	ternary gradient K <sup>+</sup> -Ion-Exchange-Column 2 K <sup>+</sup> -Buffer, 1 Regenerant Fluorescence-Detector	1153-1012, 0.15 mL	0352-0041	<b>Single-Step Reaction</b> o-phthaldialdehyde (OPA) / mercaptoethanol-derivative
<b>Polyether Antibiotics, Sulfonamides</b>	isocratic, RP-C18-Column UV-Detector	1153-1082, 1.4 mL	0352-0051	<b>Two-Step Reaction</b> vanillin or dimethylaminobenzaldehyde in methanolic sulfuric acid
<b>Sulfonamides</b>	isocratic, RP-C18_Column Fluorescence-Detector	1153-1032, 1.4 mL		<b>Single-Step Reaction:</b> Fluorescamine

## Other Applications

Application	Gradient / Column / Eluents / Detector	Product No., Reactor Size	Pickering-Kit	Derivatization Reagent(s)
<b>Chrom (III)/(VI)</b>	isocratic, Ion-Exchange-Column UV-Detector	1153-1022, 0.5 mL		<b>Single-Step Reaction</b> 1,5-diphenylcarbazide in methanolic sulfuric acid
<b>Formaldehyde</b>	isocratic, RP-C18-Column Buffer Fluorescence-Detector	1153-1022, 0.5 mL		<b>Single-Step Reaction:</b> 2,4-pentadion in acidic buffer
<b>Paralytic Shellfish Toxins</b>	Binary gradient, RP-C18-Column Ion-Pair-Reagent, ACN, Buffer Fluorescence-Detector	1153-1062, 1.0 mL	0352-0052	<b>Two-step reaction:</b> 1) periodic acid in alkaline buffer 2) diluted nitric acid
<b>Polyphosphates / Phosphonats</b>	isocratic, binary gradient Ion-Exchange-Column, Buffer UV-Detector (Trione)	<i>on request</i> , 2.0 - 2.5 mL		<b>Two-step reaction:</b> 1) HNO <sub>3</sub> resp. ammonium peroxodisulfate 2) molybdenum-vanado reagent

Application	Gradient / Column / Eluents / Detector	Product No., Reactor Size	Pickering-Kit	Derivatization Reagent(s)
<b>Heavy metals and Earth Alkaline Elements</b>	isocratic, Ion-Exchange-Column UV-Detector (Trione)	on request, 0.7 mL		4-(2-pyridylazo)resorcinol (PAR) / zinc-EDTA-solution
<b>Vitamin B1 (Thiamine)</b>	isocratic, RP-C18-Column Ion-Pair Reagent, Buffer Fluorescence-Detector (OPA)	1153-1022, 0.5 mL		<b>Single-step reaction:</b> alkaline potassium ferricyanide solution
<b>Vitamin B6 (Pyridoxin / Pyridoxal)</b>	isocratic, RP-C18-Column Buffer Fluorescence-Detector (OPA)	1153-1022, 0.5 mL		<b>Single-step reaction:</b> semicarbazide
<b>D-Biotin (Vitamin B7)</b>	isocratic, RP-C18-Column Phosphatbuffer, Methanol Fluorescence-Detector	on request, 2.0 mL		<b>Single-step-reaction:</b> <b>Avidin-FITC</b>
<b>Bromate</b>	isocratic, Ion-Exchange-Column UV-Detector (Trione)	1153-1022, 0.5 mL	0785150, (Anion Exchange column)	<b>Single-step reaction:</b> o-Dianisidine dihydrochloride solution, HNO <sub>3</sub> / KBr
<b>Voglibose</b>	isocratic, Amino Column Fluorescence-Detector (OPA)	1153-1102, 3.5 mL	1446250, (Amino column)	<b>Single-step reaction:</b> taurine, natriumperiodat in water
<b>NDELA</b>	isocratic, RP-C18-Column UV-Detector (Trione)	1153-1098, 1.0 mL		<b>Single-step reaction:</b> 1 (Naphthyl) ethylenediamin-dihydrochloride, water, Sulfanilamide, o-phosphosacid

For further information about application notes please visit us at [www.lctech.de/e/post-column-derivatization](http://www.lctech.de/e/post-column-derivatization)

Or contact us directly **LCTech GmbH, P.O. Box 1360, 84403 Dorfen, Germany,**  
Phone +49-(0)8081-9368-0, Fax +49-(0)8081-9368-10, [info@lctech.de](mailto:info@lctech.de)