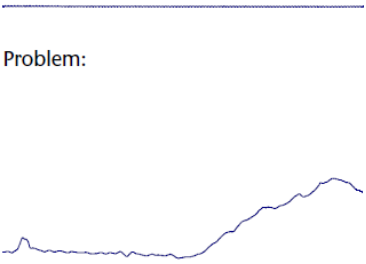




عیب یابی در HPLC

مشکل شماره ۱: انحراف در خط پایه (Baseline drift)

Problem	Probable cause	Troubleshooting
Problem No. 1: Baseline drift		
Regular:	<ol style="list-style-type: none">1. Fluctuation of column temperature. (Even small changes cause cyclic baseline rise and fall. RI- and conductivity detectors and UV-detectors at high sensitivity are most often affected.)2. Mobile phase is inhomogeneous. (Drift usually to higher absorbance, rather than cyclic pattern from temperature fluctuation.)	<ol style="list-style-type: none">1. Control temperature of column and mobile phase, use heat exchanger before detector.2. Use HPLC grade solvents, high purity salts and additives. Degas mobile phase before use and apply a degasser or expel other gases by constantly bubbling the solvents with helium.
Problem:	 <ol style="list-style-type: none">3. Contaminant or air buildup in detector cell.4. Plugged outlet line after detector. (High pressure breaks cell window, producing noisy baseline.)5. Mobile phase mixing problem or change in flow rate.6. Slow column equilibration, especially when changing mobile phase.7. Mobile phase contaminated, deteriorated or prepared from low8. Strongly retained materials in sample (high k') can elute as very broad peaks and appear to be a rising baseline. (Gradient analyses can aggravate problem.)9. Mobile phase recycled but detector not adjusted.10. Detector (UV) not set at absorbance maximum but at slope of curve.11. At higher lab temperatures (28°C) more baseline instabilities comparing to lower lab temperatures (22°C) when using ACN/Water or -buffer gradients and mixtures.	<ol style="list-style-type: none">3. Flush cell with methanol or other strong solvent. If necessary clean cell with 1 N HNO₃ (never with HCl).4. Unplug or replace line. Refer to detector manual to replace window.5. Correct composition/flow rate. Routinely monitor composition and flow rate to avoid problem.6. Flush column with intermediate strength solvent, run 10-20 column volumes of new mobile phase through column before analysis.7. Check make-up of mobile phase.8. Use guard column. If necessary flush column with strong solvent between injections or periodically during analysis.9. Reset baseline. Use new materials when dynamic range of detector is exceeded.10. Change wavelength to UV absorbance maximum.11. Higher temperatures can enhance the polymerization of ACN resulting in building of polymers. Filtration of ACN-eluent with Empore SDB-XC Polystyroldivinylbenzol filter.