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Note

Simple device to facilitate the deactivation of a gas chromatographic system by PEG 20M via the gas phase

CARLA E. A. M. DEGENHARDT and WILLEM DUVALOIS

Prins Maurits Laboratorium TNO, P.O. Box 45, 2280 AA Rijswijk (The Netherlands)

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Recently, a method has been published for the deactivation of glass capillary columns by PEG 20M via the gas phase^{1,2}. Although well deactivated columns are obtained by applying this method, it has some practical shortcomings, especially when it is used for "pepping-up" columns:

(i) because of the insertion of the PEG-filled tube in the injection port, separate deactivation of the injector is required;

(ii) connection of the column to the injector by shrinkable PTFE tubing after deactivation causes degradation of the PEG deactivating layer in the heated parts of the injector and the column;

(iii) not all gas chromatographs are equipped with proportional temperature adjustment for the injection block and, although the PEG-bleeding temperature is not critical, difficulties are encountered in keeping the injector block temperature within acceptable limits when using a constant-voltage heater.

EXPERIMENTAL

To overcome the above problems, a simple and cheap device has been constructed, as shown in Fig. 1.

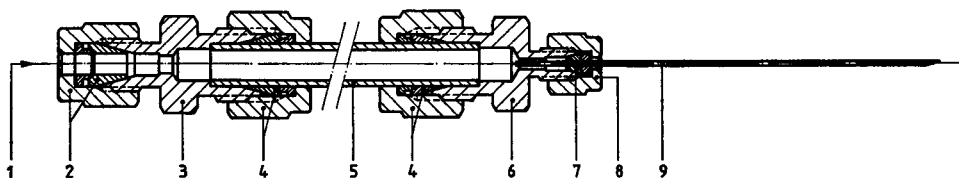


Fig. 1. Construction of the device. 1 = Carrier gas; 2 = Swagelok 1/8-in. nut + ferrule; 3 = Swagelok reducing union, 1/8-1/4 in.; 4 = Swagelok 1/4-in. nut + ferrule; 5 = 4-in. GC column quality stainless-steel tubing, I.D. 4.4 mm, O.D. 1/4 in.; 6 = Swagelok reducing union, 1/4-1/16 in.; 7 = Kalrez fitting³; 8 = Swagelok 1/16-in. nut; 9 = SGE injection needle, I.D. 0.2 mm.

The stainless-steel tube is filled with 5% PEG 20M on Chromosorb W AW, which is renewed after each deactivation. Heating tape, wrapped around the tube, provides a temperature of about 280°. This temperature is kept constant by means of a thermostat.

The device is easily connected to any gas chromatograph by inserting the needle through the septum; the needle should penetrate just past the septum in order to deactivate the entire injector. All parts of the gas chromatograph which are to be deactivated are kept at 250° during the procedure. After deactivation the device is removed, a new septum is installed, appropriate temperatures are set and the gas chromatograph is ready for use.

REFERENCES

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