Determination of ^{90}Sr in Environmental Samples using Empore Rad Disks traced with ^{85}Sr and Counted by LS

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A method for the determination of ^{90}Sr in environmental matrices such as soils and biologicals using Empore Rad disks will be discussed. Samples are traced with ^{85}Sr and prepared using standard analytical methods. Samples are dissolved in 200-400 mL 2 M HNO_3 acid and precipitated using NaOH. The solution is centrifuged and the liquid is discarded. The sample residue is dissolved in 400 mL 4 M HNO_3 and passed through an Empore Rad Disk. The disk is placed into a plastic scintillation vial containing Wallac HiSafe 3 liquid scintillation cocktail. Samples are than counted on a Packard 2750 liquid scintillation counter. The instrument is configured with three separate ROI's so that ^{85}Sr, ^{90}Sr, and ^{90}Y can be determined simultaneously where ^{85}Sr is used to correct for chemical losses. Samples can be counted immediately for ^{90}Sr or ^{90}Y can be ingrown and counted. MDA's of less than 1 dpm can be easily obtained. The main advantages to this method are that chemical recovery can easily be monitored and ^{90}Sr can be determined directly without ^{90}Y ingrowth. The main disadvantage for this method is that calibration curves for background determinations must be established.