

ABSTRACT

To ensure maximum safety in the distribution of natural gas, volatile organic sulfur compounds of high odor intensity are injected into the gas to give warning in case of leakage. Nevertheless, certain incidents like a fissure in an underground transport pipe or a leak in the masonry that contains the gas piping in a domiciliary installation expose the odorant compounds to potential adsorbents diminishing their capacity as alarm resource. In Argentina, natural gas is odorized with a mixture containing 80% of a mercaptan (TBM = tertiary butyl mercaptan) and 20% of a sulfide (MES = methyl ethyl sulfide). In the present work, adsorption experiments using natural gas and different solid materials are presented. Four soils representing different regions of Argentine have been selected for this study together with brick powder. The adsorption capacity was found to be proportional to the organic carbon content of the adsorbents. The solid moisture had an important influence on the odorant adsorption. On the other hand, the natural gas is an alternative feedstock for the domestic fuel cells. The odorants added to the natural gas act as poisons of the catalysts involved in the hydrogen production. For this reason, the retention of odorants in a synthetic material (Zeolite 13X) has also been studied, this adsorbent demonstrated to have a high adsorption capacity of TBM and MES.