

Sampling Solutions for Hydraulic Fracturing (Fracking) Exposure at Oil and Gas Sites

Introduction

Hydraulic fracturing (fracking) is the process of injecting large volumes of water mixed with sand and chemicals into the ground at high pressure to fracture the shale and allow gas and oil to flow freely. Through this process, workers are exposed to respiratory and other health hazards from respirable crystalline silica in the sand, aromatic hydrocarbons such as benzene in flowback fluids, glutaraldehyde in biocides, methanol in fracking fluids, hydrogen sulphide, and diesel particulate matter (DPM).



SKC offers active and passive solutions for sampling compounds to which oil and gas workers are exposed during fracking. SKC active samplers require an air sample pump to collect hazardous gases and vapours in air; passive samplers collect hazardous vapours by diffusion without the use of an air sample pump. These compounds include:

- Benzene and other aromatic hydrocarbons
- DPM
- Glutaraldehyde
- Hydrogen sulphide
- Methanol
- Respirable crystalline silica (also see [Sampling Solutions for Respirable Crystalline Silica, SKC Publication 1881](#))

SKC Sampling Solutions

For over 50 years, SKC has led the research, design, and manufacture of quality sampling equipment and media to aid health and safety professionals in the evaluation of occupational and environmental hazards.

SKC method-based sampling solutions for fracking at oil and gas sites include air sample pumps, active and passive samplers, sorbent tubes and filter cassettes, following agency methods and established protocols.



Sample Collection

Active Air Sampling Solutions

Target Compound	Select Methods*	SKC Sample Collection Media and Part No.	SKC Sample Pump and Part No.	Notes
Benzene and other aromatic hydrocarbons	NIOSH 1501 OSHA 1005	Sorbent tube 226-01	Pocket Pump TOUCH 220-1000TC	
Diesel particulate matter (DPM)	NIOSH 5040	DPM cassette 225-317 with GS cyclone 225 Series	AirChek TOUCH 220-5000TC	Preloaded quartz filter without internal impactor available as 225-401
Glutaraldehyde	OSHA 64	Preloaded coated filter cassette 225-9003	AirChek TOUCH 220-5000TC	
Hydrogen sulphide	OSHA 1008	Sorbent tube 226-177	Pocket Pump TOUCH 220-1000TC	
Methanol	NIOSH 2000	Sorbent tube 226-51	Pocket Pump TOUCH 220-1000TC	
	OSHA 91	Sorbent tube 226-82	Pocket Pump TOUCH 220-1000TC	Two tubes in series
Respirable crystalline silica	NIOSH 7500 NIOSH 7602 OSHA ID 142	Preloaded PVC filter cassette 225-803 and cyclone 225-01-02 or 225-100 OR Parallel Particle Impactor 225-385 with PVC filter 225-5-37 and support pad 225-27	AirChek TOUCH 220-5000TC	These cyclones have flow rates of 2.5 L/min and 2.75 L/min respectively.

* Other methods may apply. SKC recommends those listed.

Passive Air Sampling Solutions

Target Compound	Select Methods* / SKC Validation	SKC Sample Collection Media and Part No.	Notes
Benzene and other aromatic hydrocarbons	OSHA 1005	VOC Chek [®] 575-002	
	Various	VOC Chek [®] 575-001 or 575-002	
Methanol	Research Report 1895	VOC Chek 575-007	

* Other methods may apply. SKC recommends those listed.