

Sampling Solutions for Agriculture

Introduction

Agriculture is one of the most hazardous industries because of the use of chemicals in pesticides and fertilizers and other agents that expose workers to respiratory hazards¹. In the U.S., agriculture is responsible for 75% of pesticide use, putting workers at high risk for exposure to dangerous levels of pesticides whether or not they work with them directly². Poultry farming presents its own particular respiratory hazards, in such forms as dust, ammonia, pesticides, and other chemical agents³.



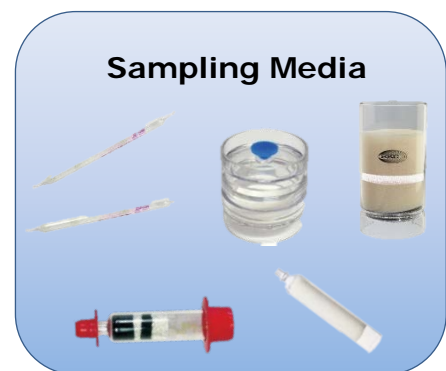
SKC offers active and passive sampling solutions for some compounds present in fertilizers, pesticides, poultry farming/processing, and food additives. SKC active samplers require an air sample pump to collect hazardous gases and vapours in air; passive samplers collect hazardous vapours by diffusion without the use of an air sample pump.

See the SKC equipment recommended for:

- Fertilizers (ammonia and nitrogen dioxide)
- Pesticides (organotin, organophosphorous, and organochlorine)
- Poultry farming/processing (ammonia, peracetic acid [PAA], and hydrogen peroxide)
- Food additives (diacetyl, 2,3-pentanedione)

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 sampling solutions for agriculture include air sample pumps, active and passive samplers, filter cassettes, and sorbent tubes following agency methods and established protocols.



References:

¹ cdc.gov/niosh/topics/aginjury

² Calvert, G., et al., "Acute pesticide poisoning among agricultural workers in the United States, 1998-2005," *American Journal of Industrial Medicine* 51(12), pp. 883-898, doi:10.1002/ajim.20623

³ National Ag Safety Database "Respiratory Health on the Poultry Farm," nasdonline.org/document/197/d0001/respiratory-health-on-the-poultry-farm.html

Sample Collection

Active Air Sampling Solutions

Target Compound	Select Methods*	SKC Sample Collection Media and Part No.	SKC Sample Pump and Part No.	Notes
Ammonia	NIOSH 6015 NIOSH 6016	Sorbent tube 226-10-06 with optional preloaded filter cassette 225-3-01	Pocket Pump TOUCH 220-1000TC or AirChek TOUCH 220-5000TC	Filter may be used to remove particulate interferences.
Diacetyl	OSHA 1012 OSHA 1013	Sorbent tube 226-183	Pocket Pump TOUCH 220-1000TC	
Hydrogen peroxide	OSHA 1019	Preloaded coated filter cassette 225-9030	AirChek TOUCH 220-5000TC	
Nitrogen dioxide	NIOSH 6014 OSHA ID 182	Sorbent tube 226-40-02	Pocket Pump TOUCH 220-1000TC or AirChek TOUCH 220-5000TC	
2, 3-Pentanedione	OSHA 1016	Sorbent tube 226-183	Pocket Pump TOUCH 220-1000TC	
Peracetic acid (PAA)	INRS	Sorbent tube 226-199-UC	AirChek TOUCH 220-5000TC	<i>Requires preloaded coated filter cassette 225-9030 to collect hydrogen peroxide simultaneously</i>
Pesticides	OSHA 62 OSHA 67 OSHA 70 OSHA 74	OVS tube 226-30-16	AirChek TOUCH 220-5000TC	
	NIOSH 5600 NIOSH 5601	OVS tube 226-58	AirChek TOUCH 220-5000TC	
	ASTM D4861 EPA IP-8	Low-volume PUF tube 226-92	Leland Legacy 100-3002	
	EPA TO-4A	High-volume PUF tube 226-131 and quartz filter 225-1808	-	

* Other methods may apply. SKC recommends those listed.

Passive Air Sampling Solutions

Target Compound	Select Methods* / SKC Validation	SKC Sample Collection Media/Sampler and Part No.	Notes
Ammonia	Research Report 1885	UME ^x 300 500-300	Solvent extraction and ion chromatography with conductivity detection
Nitrogen Dioxide	Research Report 1789	UMEx 200 500-200	Solvent extraction and ion chromatography with conductivity detection

* Other methods may apply. SKC recommends those listed.