

# IH Scan Packages Novi Laboratory

Success Through Science®

## SCANS

### ACIDS, INORGANIC (5)

METHOD	SAMPLING MEDIA
OSHA ID-165SG / ID-174SG	Silica Gel Tube, washed SKC 226-10-03 or ORBO 53
- Hydrogen Bromide	- Sulfuric Acid
- Hydrogen Chloride	- Phosphoric Acid
- Nitric Acid	

*Note: Flow rate 0.2 L/min; volume 96 L. NIOSH has also issued new filter methods for hydrofluoric acid (NIOSH 7906), volatile acids (NIOSH 7907), and non-volatile acids (NIOSH 7908).*

### ALDEHYDE SCANS (12)

METHOD 1	SAMPLING MEDIA
EPA TO-11A	Silica Gel tube, treated with DNPH SKC 226-119 Sep-pak cartridges are another option

METHOD 2	SAMPLING MEDIA
OSHA 1007	Passive badges SKC UMEEx 100 or AT 571

- |                     |                              |                                    |
|---------------------|------------------------------|------------------------------------|
| - Acetaldehyde      | - Crotonaldehyde             | - Isovaleraldehyde                 |
| - Acetone           | - Dimethylbenzaldehyde, 2,5- | - Propionaldehyde (Propanaldehyde) |
| - Benzaldehyde      | - Formaldehyde               | - Tolualdehyde, Total              |
| - Butyraldehyde, n- | - Hexaldehyde, n-            | - Valeraldehyde, n-                |

*Note: **For Sampling Media:** Before sampling, store media in a freezer. After sampling, store and ship samples refrigerated and extract within 2 weeks. When sampling on tubes (SKC 226-119), use formaldehyde (NIOSH 2016) sampling guidelines. Flow rate 0.03-1.5 LPM; volume 1-15 L. See EPA method, if using DNPH-treated Sep Pak cartridges. Can also use passive badges (AT 571 or SKC UMEEx 100), except badges should not be used for formalin sampling.*

### AMINES SCANS (2 OPTIONS)

#### AMINES SCAN 2 (4)

METHOD	SAMPLING MEDIA
NIOSH 2010	Silica gel tube SKC 226-10 or 226-15
- Ethylamine	- Dimethylamine
- Diethylamine	- Methylamine

*Note: Some analytes are based on NIOSH P&CAM 221 (2nd Ed.); recommends a flow of 0.2 LPM. Store and ship samples refrigerated. From NIOSH 2010, the recommendations are a flow rate of 0.01-1.0 LPM and volume 3-30 L.*

## AMINES SCAN 3 (4)

METHOD	SAMPLING MEDIA
NIOSH 2010	Silica gel tube SKC 226-10 or 226-15
- Butylamine, n-	- Isopropylamine, n-
- Cyclohexylamine	- Triethylamine

*Note:* Store and ship samples refrigerated. Some analytes based on method NIOSH P&CAM 221 (2nd Ed.), which recommends flow of 0.2 LPM. From NIOSH 2010, the recommendations are a flow rate of 0.01-1.0 LPM and volume 3-30 L.

## ISOCYANATES (5)

METHOD	SAMPLING MEDIA	
OSHA ID-125G	Filter, mixed cellulose ester or polyvinyl chloride MCE or, if also requesting total dust, use PVC – PW (preweighed)	
- 2,4-TDI	- MDI	- IPDI
- 2,6-TDI	- HDI	-

*Note:* Store filters in a freezer before sampling and protect from direct sunlight. After sampling, refrigerated storage recommended, but not required. Sample open-faced.

Flow rate 1.0 LPM; volume 15 liters (maximum is 240 liters).

**Recommendation:** Immediately after sampling, transfer filter to amber vial containing 2 mL DMSO/ACN (field desorption helps to stabilize isocyanates, especially MDI). See [maxxamlabs.com](http://maxxamlabs.com) for video on how to remove filter from the cassette (Field Stabilization).

## METALS

### WELDING SCAN (13)

METHOD	SAMPLING MEDIA	
OSHA ID-125G	Filter, mixed cellulose ester or polyvinyl chloride MCE or, if also requesting total dust, use PVC – PW (preweighed)	
- Antimony	- Copper	- Molybdenum
- Beryllium (Acid Soluble)	- Iron Oxide	- Nickel
- Cadmium	- Lead	- Vanadium
- Chromium	- Manganese	- Zinc Oxide
- Cobalt		

*Note:* Flow rate 2 LPM; volume 960 liters. If total welding fume (as particulate) will also be tested on the same filter, we recommend collection on a preweighed PVC filter (vs. MCE). We can also analyze inhalable samples, collected using IOMs



## METALS SCAN (19)

METHOD	SAMPLING MEDIA				
NIOSH 7303	Filter, mixed cellulose ester or polyvinyl chloride MCE or, if also requesting total dust, use PVC – PW (preweighed)				
- Aluminum	- Beryllium	- Copper	- Molybdenum	- Titanium	
- Antimony	- Cadmium	- Iron	- Nickel	- Vanadium	
- Arsenic	- Chromium	- Lead	- Selenium	- Zinc	
- Barium	- Cobalt	- Manganese	- Tin		

*Note: Do not exceed 2 mg of total dust on the filter.  
Flow rate 2 LPM; volume 960 liters. If filter is not overloaded, sample can collect a higher air volume.  
Please note that some metal compounds and oxides are not soluble in the routine acids used for digestion (i.e., aluminum oxide) and may be underestimated, if analyzed as the element. Contact the laboratory, if questions*

## POLYAROMATIC AROMATIC HYDROCARBONS

### SCAN (5)

METHOD	SAMPLING MEDIA		
OSHA 58	Glass fiber filter GFF – 37 mm		
- Anthracene	- Chrysene	- Pyrene	
- Benzo-a-pyrene	- Phenanthrene		

*Note: CTPV can be analyzed on the same filter, before the PAH analysis.  
Refrigerated storage is recommended and protect samples from light.  
After sampling, remove filter from cassette, fold in quarters with the sample inside. You can use a filter to wipe the inside walls of cassette, if there is residue. Then transfer the filter to a glass vial with a teflon-lined cap.  
Flow rate 2.0 LPM and suggested air volume 960 L.*

### SCAN (17)

METHOD	SAMPLING MEDIA			
NIOSH 5506	Teflon filter (2 um) and XAD-2 tube (sampling train) PTFE-2um & XAD-2 (SKC 226-30-04)			
- Acenaphthene	- Benzo(b)fluoranthene	- Chrysene	- Indeno(1,2,3-cd)pyrene	
- Acenaphthylene	- Benzo(e)pyrene	- Dibenzo(a,h)anthracene	- Naphthalene	
- Anthracene	- Benzo(ghi)perylene	- Fluoranthene	- Phenanthrene	
- Benzo(a)anthracene	- Benzo(k)fluoranthene	- Fluorene	- Pyrene	
- Benzo(a)pyrene				

*Note: Store and ship samples refrigerated and protect from light. Light exposure can be reduced by using amber vials or wrapping vials and tubes in foil.  
After sampling, transfer the filter to a glass vial with a teflon-lined cap.  
Flow rate 2.0 LPM and suggested air volume 200-1,000 L.*

# VOLATILES

## BTEX (4)

METHOD	SAMPLING MEDIA
BV GC-FID / NIOSH 1501 / NIOSH 1550	Charcoal tube SKC 226-01 or 226-09 Passive badge
- Benzene	- Ethylbenzene
- Toluene	- Xylenes, Total
<i>Note: Samples collected on a charcoal tube or passive badge. General sampling guidelines for solvents are a flow rate <math>\leq 0.2</math> LPM and suggested sample volume &lt; 10L. Individual NIOSH methods may vary. Sample storage in a refrigerator is recommended.</i>	

## BTEX +TOTAL HYDROCARBONS (5)

METHOD	SAMPLING MEDIA
BV GC-FID / NIOSH 1501 / NIOSH 1550	Charcoal tube SKC 226-01 or 226-09 Passive badge
- Benzene	- Ethylbenzene
- Toluene	- Xylenes, Total
	- Hydrocarbons, Total as Hexane (THC)
<i>Note: Samples collected on a charcoal tube or passive badge. General sampling guidelines for solvents are a flow rate <math>\leq 0.2</math> LPM and suggested sample volume &lt; 10L. Individual NIOSH methods may vary. Sample storage in a refrigerator is recommended.</i>	

## PAINT SOLVENT SCAN (15)

METHOD	SAMPLING MEDIA
BV GC-FID / Various NIOSH equivalent methods	Charcoal tube SKC 226-01 or 226-09 Passive badge
- Acetone	- Ethylbenzene
- Benzene	- Ethyl Acetate
- Butyl Acetate, n-	- Heptane, n-
- Butyl Alcohol, n-	- Hexane, n-
	- Isopropyl Alcohol
	- Methyl Ethyl Ketone
	- Methyl Isobutyl Ketone
	- Methyl Propyl Ketone
	- Toluene
	- Trimethylbenzenes (all isomers)
	- Xylene
<i>Note: At higher levels, ethyl acetate and n-hexane can interfere with each other. Samples collected on a charcoal tube or passive badge. General sampling guidelines for solvents are a flow rate <math>\leq 0.2</math> LPM and suggested sample volume &lt; 10L. Individual NIOSH methods may vary. Sample storage in a refrigerator is recommended.</i>	



## VOLATILES by GC/MS, CANISTERS

METHOD	SAMPLING MEDIA	
EPA TO-15	Evacuated Canisters (options are 1.4L, 6L, or BottleVacs)	
- 1,1,1-Trichloroethane	- Allyl Chloride	- Heptane
- 1,1,1,2,2-Tetrachloroethane	- Benzene	- Hexachlorobutadiene
- 1,1,2-Trichloroethane	- Benzyl Chloride	- Hexane
- 1,1-Dichloroethane	- Bromodichloromethane	- Isopropyl Alcohol
- 1,1-Dichloroethene	- Bromoethene	- m & p-Xylene
- 1,2,4-Trichlorobenzene	- Bromoform	- Methyl tert-Butyl Ether
- 1,2,4-Trimethylbenzene	- Bromomethane	- Methylene Chloride
- 1,2-Dibromoethane	- Carbon Disulfide	- Naphthalene
- 1,2-Dichlorobenzene	- Carbon Tetrachloride	- o-Xylene
- 1,2-Dichloroethane	- Chlorobenzene	- Propene
- 1,2-Dichloropropane	- Chloroethane	- Styrene
- 1,3,5-Trimethylbenzene	- Chloroform	- Tetrachloroethene
- 1,3-Butadiene	- Chloromethane	- Tetrahydrofuran
- 1,3-Dichlorobenzene	- cis-1,2-Dichloroethene	- Toluene
- 1,4-Dichlorobenzene	- cis-1,3-Dichloropropene	- trans-1,2-Dichloroethene
- 1,4-Dioxane	- Cyclohexane	- trans-1,3-Dichloropropene
- 2,2,4-Trimethylpentane	- Dibromochloromethane	- Trichloroethene
- 2-Butanone	- Dichlorodifluoromethane	- Trichlorofluoromethane
- 2-Hexanone	- Dichlorotetrafluoroethane	- Trichlorotrifluoroethane
- 4-Ethyltoluene	- Ethyl Acetate	- Vinyl acetate
- 4-Methyl-2-pentanone	- Ethylbenzene	- Vinyl chloride
- Acetone	- Tentatively Identified Compounds (TICs)	

*Note: Tentatively Identified Compounds (TICs) are added upon request, providing semiquantitative results.*

*Flow controllers can be ordered for grab samples or predefined timeframes (i.e., 4 hours, 8 hours, etc.).*

*Canisters must be returned within 30 days, used or not, to avoid replacement charges. Canisters are batch certified; individual certification incurs an additional charge.*

*Contact the Novi Laboratory at 800-806-5887 to discuss sampling options and order canisters. These are not currently available to order online.*



## VOLATILES by GC/MS, THERMAL DESORPTION

METHOD	SAMPLING MEDIA	
EPA TO-17	Carbotrap tub	
- Benzene	- 1,2-Dichlorobenzene	- Naphthalene
- Bromobenzene	- 1,3-Dichlorobenzene	- n-Propylbenzene
- Bromochloromethane	- 1,4-Dichlorobenzene	- Styrene
- Bromodichloromethane	- 1,1-Dichloroethane	- 1,1,1,1,-Tetrachloroethane
- Bromoform	- 1,2-Dichloroethane	- 1,1,2,2-Tetrachloroethane
- n-Butylbenzene	- 1,1-Dichloroethene	- Tetrachloroethene
- sec-Butylbenzene	- cis-1,2-Dichloroethene	- Toluene
- tert-Butylbenzene	- Trans-1,2-Dichloroethene	- trans-1,3-Dichloropropene
- Carbon tetrachloride	- 1,2-Dichloropropane	- 1,2,3-Trichlorobenzene
- Chlorobenzene	- 1,3-Dichloropropane	- 1,2,4-Trichlorobenzene
- Chloroform	- 2,2-Dichloropropane	- Trichloroethane
- 2-Chlorotoluene	- 1,1-Dichloropropene	- 1,1,1-Trichloroethane
- 4-Chlorotoluene	- Ethylbenzene	- 1,1,2-Trichloroethane
- cis-1,3-Dichloropropene,	- Hexachlorobutadiene	- 1,2,3-Trichloropropane
- 1,2-Dibromo-3-chloropropane	- Isopropylbenzene	- 1,2,4-Trimethylbenzene
- Dibromochloromethane	- p-Isopropyltoluene	- 1,3,5-Trimethylbenzene
- 1,2-Dibromoethane	- Methylene chloride	- Xylenes
- Dibromomethane		

*Note: It is recommended to store samples refrigerated. Tubes are precleaned, must be ordered from the Maxxam Analytics laboratory, and used within 30 days. All tubes must be returned within 30 days, used or not, to avoid replacement charges.*

*Sampling parameters from method NIOSH 2549: Flow rate 0.01 - 0.05 LPM and a suggested air volume of 1-6 L.*

*Contact the Novi laboratory to order media; Carbotrap tubes are not currently available online.*

