

Certificate of Analysis

Micro Technology

has been analyzed for compliance with the air/gas quality portion of the specification:

ISO 8573-1:2010

as reported on this certificate for the sample described below.



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Results vs ISO 8573-1:2010

Limiting Characteristics		Purity Class (B)	Sample Results (3)	Specification Limit	Pass / Fail	Estimate of Uncertainty % (1)
Particles	Maximum Number of Particles per Cubic Meter (m3) as a Function of Particles Size, d, in micrometers (µm)	(D)	(A)			
			0.1 < d ≤ 0.5 µm	5679		±19
			0.5 < d ≤ 1.0 µm	3743		±19
			1.0 < d ≤ 5.0 µm	Detected		
By Mass Concentration (CP), mg/m ³		6	<0.048	≤5	PASS	±4.3
Water	Pressure Dew Point, °C	(W)	>-12		N/D	±30
Oil	Oil Aerosol, mg/m ³		<0.048			±4.6
	Oil Vapor, mg/m ³		<0.004			±6.3
	Total Oil, mg/m ³	2	<0.052	≤0.1	PASS	±10.9
Other (2)	Other Vapors, mg/m ³ (O4), comprised of:					
	Cyclotrisiloxane, hexamethyl- (32)			0.074		±6.3
	Silicic acid, diethyl bis(trimethylsilyl) ester (32)			0.058		±6.3

Sampling Point Identification

Collection Point: Main Drop
Purification: Refrigerated Dryer

Sampling Schedule: Annual

Next Sample Due Approx: 8/14/2025

Contact (4) *

To: MICRO TECHNOLOGY
1819 FIRMAN DRIVE #137
RICHARDSON, TX 75081

Customer ID: 93786
Purchase Order: 70065202
Sample Date: Wed, Aug 14, 2024

Sampled By: Fred Beckhusen
Sampled For: Micro Technology

Received: Wed, Aug 21, 2024
Analyzed: Tue, Aug 27, 2024
Reported: Tue, Aug 27, 2024

Sampling Point Identification:

Collection Point: Main Drop
Purification: Refrigerated Dryer

Customer Comments:

Results Notes

n/a = not applicable n/d = not determined n/p = not provided n/s = not specified None (or 0) indicates <LOQ, Tr = Trace, >LOD & LOQ (1) At the 95% confidence interval as a percent of the specification limit includes sampling and analytical estimates of uncertainty. Measurement uncertainty is not taken into account when reporting Pass/Fail designations. (2) Gases named in ISO 8573-6 Table 2 and/or other measurands required by the specification or customer. (3) Results apply to the sample as received from the customer. (4) Information supplied by the customer is designated by an asterisk (except dates received, analyzed, and reported) and can affect the validity of results.

Specification Notes

(A) By agreement between the customer and laboratory, this report does not include 0.1-0.5 μm particles.
(B) For a "baseline" sample, the most restrictive class that the sample passes was selected.
(D) Particles of size $d > 5.0 \mu\text{m}$ were detected. Particle classes 1-5 may not be employed according to ISO 8573-1. The particles had a maximum size of 10 μm and the following appearance: irregularly shaped particles dark gray/black in color.

Laboratory Notes

(04) Other compounds that are not Oil Vapor were detected and may be considered Organic Solvents. The first number in parentheses indicates the goodness of fit of the sample mass spectrum to the NIST library, with 100 being complete agreement.
(W) Pressure dew point was calculated based on the 20/a-P tube. When both tubes are used, the results with an air volume nearer the recommended volume are used. The 5/a-P tube reading resulted in a calculated pressure dew point of $> 19^\circ\text{C}$. The water vapor detector tube reading was greater than the highest point on the scale. Water Class and Pass/Fail cannot be determined because the true value is unknown.

System Information *

Comp Make		Filter Make	
Comp Model		Dryer Make	
Comp Serial			

Sampling Collection Conditions *

Sampling Collection Information *

	Temperature	Pressure	Parameter	Media No.	Flow Rate (L / min)	Sampling Time	Blank	For Detector Tubes Only	
								Reading	Scale
Sampling Point	n/p	80 psig	Aerosol (Particles & Oil Aerosol)	671626	50	10 : 02			
Ambient	75 °F	29.9 in Hga	Water Vapor (Pressure Dew Point)	5/a-P (6728531)	4	0 : 60	>	200 mg/m ³	200
				20/a-P (8103061)	4	10 : 00	>	500 mg/m ³	500
			Sulfur Dioxide, SO ₂	0.5/a-P (6728491)				ppmv	
			Nitrogen Oxides, NO _x	0.5/a-P (CH29401)				ppmv	
Filter Flowmeter			Oil Vapor	971292	4	10 : 00	970901		
Tube Flowmeter			CO, CO ₂ , HC						

NOTE: Blank fields indicate that samples were not obtained for the given limiting characteristic and no analytical results are presented.

Analytical Methods

Test Method	Contaminant	Sampling Technique	Analytical Technique	Accredited
CAT-A-01	Gases (CO, CO ₂ , HC)	Gas Collection Bottle	Gas Chromatography - MS / FID	Yes
CAT-A-03	Particles by Mass	Membrane Filter (0.2 μm)	Gravimetry	Yes
CAT-A-03	Oil Aerosol	Membrane Filter (0.2 μm)	Extraction - Gravimetry	Yes
CAT-A-04	Particles by Size	Membrane Filter (0.2 μm)	Optical Microscopy	Yes
CAT-A-06	Oil Vapor	Charcoal Tube	Gas Chromatography - Mass Spectrometry	Yes
CAT-A-07	Pressure Dewpoint, SO ₂ , NO _x	Gas Detector Tube	Chemical Length-of-Stain	Yes
CAT-A-10	Particles by Size	Laser Particle Counter	Laser Particle Counter	Yes

† Trace Analytics, LLC certifies that the instrument(s) associated with the specified method were calibrated in accordance with applicable internal QA procedures.