IMAGING SYSTEM AIRBORNE EMISSIONS ASSESSMENT REPORT

ANTHEM/4UP-1.01

The following output device, when used with the following ablative printing medium, has met the criteria of the CreoScitex Imaging System Airborne Emissions Assessment Protocol (ISAEAP; CreoScitex Document # 72-3495B).

CreoScitex output device 4up lab engine Model n/a with thermal head TH 2_ PIX 224_

Printing medium Anthem Batch/Lot # n/a_____ ♦ Positive ◊ Negative

Media vendor Presstek

Date of testing July 27, 2001_

Testing data:

Imaging speed 0.268_ m^2/min (maximum _0.289); Duty cycle 0.3 (26/3.7 = 7 pl/hr at max 12.9)

Plates size L x H _745 x 615 mm (maximum 760 x 660); Image size 715 x 590 mm (0.4219 m^2)

Amount of plates run just before and during sampling 26 (= 11.0 m^2)

Imaging screen (percentage of imaged area) 100 %

Exposure _500__ mJ/cm^2 (nominal _450__)

Power on plate _18_ W (current spec for TH2/224 pix is _18.5_)

Drum speed _121_ rpm; Drum diameter 239 mm

Chemical filter p/n prototype s/n n/a_____; depletion prior to test 10_ %

Particulate filter p/n 57-8791 s/n n/a_____; depletion prior to test _0_ %

Air flow through the DRS 1.3 m^3/min = 46 cfm (minimum 1.2 m^3/min = 42 cfm)

Estimate of the room air mixing K = 5_; Outdoor air ventilation 1.3 m^3/min = 106 cfm

Room volume, appr. 69 m^3 (5.9 x 4.9 x 2.4 m) = 2430 ft^3 ; ACH number 1.1

Assessment was performed:

♦ By test

◊ By evaluation based on the performance of output device _____ Model _____ (Assessment Report # _____ dated _____)

Reason for evaluation: _____

Concentrations in OBZ were determined by: ♦ sampling in OBZ

? sampling in OD and AO and computation by

$$C_{OBZ} = C_{OD} + C_{AO}\frac{Q_{AO}}{Q_{vent}}$$

Compounds sought for	Concentrations, mg/m^3					Limits per ISAEAP, mg/m^3		OBZ RH
	DL	Background	AO	OD	OBZ	OBZ	AO	
Acetaldehyde	0.002	0.008	0.004		0.011	45		0.00
Acrolein	0.002	0	0		0	0.23		0.00
Benzene	0.006		0		0	1.12	1.6	0.00
Carbon monoxide	2		0		0	29		0.00
Ethylene oxide	0.2		0		0	0.63	0.9	0.00
Ethylenediamine	0.3		0		0	25		0.00
Formaldehyde	0.002	0.016	0.006		0.017	0.084	0.12	0.01
Isopropanol	0.3				0.97	500		0.00
Particulate Total	0.15				1.2	1.5		0.80
Toluene	0.01		0		0	188		0.00
Xylene	0.006		0		0	434		0.00
OBZ TRH								0.81

Concentrations below detection limit are indicated as "0".

Nitrogen dioxide and nitric oxide were not found in the MGR tests and, subsequently, not measured.

Particulate was measured as total, but the limit per ISAEAP is given for the respirable fraction. NOTE: The particulate filter was brand new before the test and, hence, the least efficient.

Compounds to be tested for were sourced from: (a) Presstek, Incorporated. Material Safety Data Sheet. Product name: Anthem. Effective Date: 05/09/00; (b) Emissions and H&S Test – Presstek Anthem. CreoScitex, June 28, 2001.

Measurement data were sourced from: Anthem – Air Emissions Protocol Test. ALS Environmental, August 27, 2001 (ALS File No. N3860).

Conclusion on meeting the ISAEAP criteria: ♦ **Yes**
◊ **No**

If "No", explain

_____

Is outdoor air ventilation greater than 2.8 m^3/min (100 cfm) required: ◊ **Yes**
♦ **No**

If "Yes", Ventilation required ____ m^3/min = ____ cfm

This test was performed with an output device equipped with TH 2 thermal head. However, since the collection efficiency of TH 1.7 thermal head is the same (see: DR Nozzles Comparative Collection Efficiency for Various Thermal Heads. CreoScitex, August 16, 2001), the test results can be extended to all 4up devices equipped with either TH 2 or TH 1.7 thermal heads.

Date August 28, 2001 City Burnaby, BC

CreoScitex	Sampling/Analytical service: ALS Environmental
Name Alexander Kheifets	Name Elizabeth McDonald, CIH, ROH

Abbreviations and nomenclature

AO – air outlet of the debris removal cabinet
ACH – air changes per hour
C – concentration (mg/m^3)
DL – detection limit
DRS – debris removal system
OBZ – operator breathing zone
OD – output device
PIX – number of pixels
TRH – total relative hazard
Q – air flow
Q_{vent} – outdoor air ventilation rate
RH – relative hazard