CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2023
DateRun:	06/23/2023
Experimenters:	Alexander Symko
ClientType:	
ProjectNumber:	Project #6
Substrates:	Aluminum, Glass/Quartz, Plastic, Stainless Steel
PartType:	Coupon
Contaminants:	Inks
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric, Visual, Gloss-Color Meter
Purpose:	Testing the efficacy of case medical ink remover on sharpie ink
Experimental Procedure:	A set of coupons consisting of anodized aluminum (supplied by client), glass, plastic, and stainless steel were weighed initially. Colorimeter readings for the substrates were also taken. A blue fine point sharpie was applied to the bottom third of each coupon, and colorimeter and gravimetric readings were taken again for this "contaminated" state. The cleaners selected for this experiment; A - the case medical ink remover, B - Bitu Ox ink remover, and C - tap water, were sprayed onto a wypall towel and manually wiped down the surface of the coupon 10 times. These coupons were then allowed to dry over the weekend before final weights and colorimeter readings were taken.
Results:	Both the gravimetric and colorimetric analysis encountered some issues during this testing process. Gravimetric analysis proved difficult as the weight of the ink deposited by the sharpie onto the substrate was so insignificant that even the highly sensitive scales used during testing were unable to detect useful differences between clean and soiled coupons. Colorimetry also had problems due to the fact that both the anodized aluminum, glass, and stainless steel fluoresce significantly, meaning that detecting leftover soil provided inaccurate readings. Visual observation proved to be the most useful for this experiment, and the results of the experiment can be clearly seen in the images below:

initial

Current version

1

Name:
initial
Caption:

set of coupons prior to being soiled with sharpie

Image:
initial set of coupons

Related objects

None

Figure 1: initial set of coupons

dirty

Current version

1

Name:
dirty
Caption:

set of coupons after being soiled with sharpie

Image:
soiled set of coupons

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Related objects

None

Figure 2: set of coupons with soil applied

final

Current version

1

Name:
final
Caption:

set of coupons after being cleaned using ink removers

Image:
final set of coupons

Related objects

None

Figure 3: set of coupons following cleaning

A comparative product was used for laboratory research purposes, but at the behest of the client will not be included in analysis. Regarding the pictures above, the case medical ink remover was the set of coupons making up the left column, and the coupons utilizing only water make up the rightmost column.

Summary:

Conclusion: In conclusion, the case medical ink remover succeeded at removing the majority of the ink from the substrate. Compared to tap water, it was immensely more effective.