Development of Descriptive Terminology for Inkjet-printed Photographs and Fine Art — Daniel Burge, Image Permanence Institute

Abstract

The goal of this project was to develop descriptive terminology for inkjet-printed photographs and fine art prints for cultural collections to ensure accurate object understanding and preservation. Inaccurate or imprecise descriptions put objects at risk for inadequate or even harmful use and care. Research into the permanence of inkjet prints has shown that various subtypes of inkjet have significant differences in their responses to the environment, handling, and display and as such have unique and sometimes potentially contradictory preservation needs. Unfortunately, there is currently no single, generally-accepted approach to describing these variations in inkjet prints. To address this problem, a set of criteria to appraise potential approaches was developed. This was followed by collection of existing descriptive systems from the literature and comparison to the criteria, and finally selection of the best system or the best features from each upon which to create a new system. While none of the existing systems met all of the criteria, each of those reviewed clearly had strengths that could contribute to a new combined system. A final terminology and descriptive approach was then created. In the new system, the single primary term “inkjet” is followed by a sequence of four standard qualifiers (colorant, vehicle, coating, and support) that provide a complete picture of the material which can be used as a reliable guide to communicate about and care for the object.

Table 1: Criteria for Inkjet Media Naming and Descriptive Terms

<table>
<thead>
<tr>
<th>Media Naming Criteria</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>The name should be used to multiple audiences and provide both a basic name and a</td>
<td>Each name must be readable, unique, and used consistently by the community of</td>
</tr>
<tr>
<td>detailed name (PMA)</td>
<td>interest in the objects.</td>
</tr>
<tr>
<td>The name and any qualifiers should be derivable from the object as much as possible</td>
<td>The name should be free of colloquial synonyms (WIR)</td>
</tr>
<tr>
<td>(PMA)</td>
<td></td>
</tr>
<tr>
<td>The system should be reproducible by others</td>
<td></td>
</tr>
<tr>
<td>The naming system should be as simple as possible</td>
<td></td>
</tr>
<tr>
<td>All terms used within a naming convention should be defined</td>
<td></td>
</tr>
<tr>
<td>The naming system should be able to differentiate objects according to care needs</td>
<td></td>
</tr>
<tr>
<td>The naming system should be flexible to allow for modification as technologies</td>
<td>Still agreed with the Medium and Extended Medium approach</td>
</tr>
<tr>
<td>evolve and new materials are incorporated</td>
<td></td>
</tr>
<tr>
<td>The name should be free of manufacturer and brand names</td>
<td></td>
</tr>
<tr>
<td>The name should be free of colloquial synonyms (WIR)</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Advantages and Disadvantages of Existing Media Name Systems

<table>
<thead>
<tr>
<th>Media Name</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philadelphia Museum of Art (PMA)</td>
<td><em>Medium</em> and Extended Medium** approach based on direct object examination Free of manufacturer names</td>
<td>Very limited descriptive terms for inkjet Names do not need to inkjet print care No glossary to explain terms</td>
</tr>
<tr>
<td>Wilhelm Imaging Research (WIR)</td>
<td>Includes ink vehicle Rejects colloquialisms such as Archival Pigment Print</td>
<td>Incomplete** Extended names only Uses manufacturer names No glossary No method to collect the necessary information</td>
</tr>
<tr>
<td>Martin Jürgens</td>
<td>Simple name and two qualifiers Provides significant support information</td>
<td>Not up to date</td>
</tr>
</tbody>
</table>

Table 3: The Media Naming and Descriptive Terms Chart

<table>
<thead>
<tr>
<th>Basic Media Name</th>
<th>Colorant</th>
<th>Ink Vehicle</th>
<th>Coating</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injet</td>
<td>Dye</td>
<td>Mixed</td>
<td>Aqueous</td>
<td>Plan paper</td>
</tr>
<tr>
<td></td>
<td>Mixed</td>
<td>Pigment</td>
<td>UV-curable</td>
<td>Fine art paper</td>
</tr>
<tr>
<td></td>
<td>(Unknown colorant)</td>
<td>Liquid</td>
<td>Latex</td>
<td>RC paper</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wax</td>
<td>Canvas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Other</td>
<td>Other</td>
</tr>
</tbody>
</table>

Table 3: The Media Naming and Descriptive Terms Chart

Example 1

The names below show the value of a term to describe COLORANT TYPE. The DYE print developed significant fade and hue shift due to prolonged light exposure, while the PIGMENT print shows only minor fade.

Injet: DYE on porous-coated RC paper
Injet: PIGMENT on porous-coated RC paper

Example 2

The names below show the value of a term to describe the paper COATING TYPE for prints exposed to pollution. The POLYMER coating encapsulates the colorant protecting it from ozone. The POROUS coating exposes the colorants to the air and pollution attack.

Injet: dye on POLYMER-coated RC paper
Injet: dye on POROUS-coated RC paper
Injet: dye on POROUS-coated RC paper

Example 3

The names below show the value of the term to describe paper COATING TYPE for prints exposed to high humidity. The water-soluble POLYMER coating allows dyes to migrate and cause fade and loss of image sharpness and detail overall. The POROUS coating does a better job holding the dye in place.

Injet: dye on POLYMER-coated RC paper
Injet: dye on POROUS-coated RC paper

Example 4

The names below show the value of the term describing PAPER TYPE in terms of water exposure. The porous coating on the RC PAPER remained intact as the RC PAPER did not swell when wet. The BARYTA PAPER did swell and fracture causing the porous coating to crack as well.

Injet: pigment on porous-coated RC PAPER
Injet: pigment on porous-coated BARYTA PAPER

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Method

The first step was to create a set of criteria by which to evaluate the effectiveness of any recommended system (see Table 1). The next step was to evaluate existing inkjet media naming systems according to the criteria (see Table 2). Existing systems from the Philadelphia Museum of Art, Wilhelm Imaging Research, and Martin Jürgens were evaluated. Based on analysis of the advantages and disadvantages of each, a new system was developed.

Recommendations from IPI

IPI’s goal throughout this project was to examine the existing systems for media naming of inkjet prints and either select the best, combine the best of each, or create a wholly new system. Whatever approach was selected, it would have to meet as many of the above criteria as possible. In examining the extant systems, IPI found that each had much to offer, but even a combined approach would not be sufficient. In the end, IPI chose to synthesize and extend the previous works to create its own recommendation for media naming and description. IPI strongly agreed with the Medium and Extended Medium approach and extend the previous works to create its own recommendation for media naming and description. IPI has shown that various subtypes of inkjet have significant differences in their responses to the environment, handling, and display and as such have unique and sometimes potentially contradictory preservation needs. Unfortunately, there is currently no single, generally-accepted approach to describing these variations in inkjet prints. To address this problem, a set of criteria to appraise potential approaches was developed. This was followed by collection of existing descriptive systems from the literature and comparison to the criteria, and finally selection of the best system or the best features from each upon which to create a new system. While none of the existing systems met all of the criteria, each of those reviewed clearly had strengths that could contribute to a new combined system. A final terminology and descriptive approach was then created. In the new system, the single primary term “inkjet” is followed by a sequence of four standard qualifiers (colorant, vehicle, coating, and support) that provide a complete picture of the material which can be used as a reliable guide to communicate about and care for the object.

Conclusion

IPI’s new system should be useful for all users and can be easily integrated into the PMA structure or as an expanded version of Martin Jürgens’ systems. The suggested media naming and description truly stands on the backs of giants, relying on components of previous authors. It takes the best of each and then updates and synthesizes them into a single system that, with the data generated during IPI’s Digital Print Preservation projects, can be used for effective care for these materials for generations to come.

References