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1. SCOPE

This specification sets forth the minimum requirements of printing ink for printers in the Office of State Publishing (OSP). OSP has multiple printing processes requiring inks with different characteristics for various jobs printed for its customers.

2. APPLICABLE LAWS and INDUSTRY STANDARDS

Specifications, standards, and codes referenced in this document in effect on the opening of the Invitation for Bid (IFB) form a part of this specification.

2.1. LAWS and REGULATIONS

- 2.1.1. Printing ink shall comply with all applicable Federal, State, and local safety and environmental regulations at the time of delivery.
- 2.1.2. Sacramento Metropolitan Air Quality Management District (SMAQMD), Regulation 04-Prohibitory Rules, under 450 Graphic Arts Operations 301 Standards Section, VOC content limits for materials used in graphics arts operations.
- 2.1.3. U.S. Environmental Preferable Agency (EPA) Method 24 Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings
- 2.1.4. The Clean Air Act Amendments of 1990 (CAAA)
- 2.1.5. The Clean Water Act of 1972 (CWA)
- 2.1.6. The resource Conservation and Recovery Act of 1974 (RCRA)
- 2.1.7. The Hazardous and Solid Waste Amendment Act of 1984 (HSWA)

2.2. INDUSTRY STANDARDS

- 2.2.1. ISO12647-1 to -7 Standards for printing process; CMYK Print (set of quality control guidelines for their printing process)
- 2.2.2. ISO 2846-1 Graphic Technology – Colour and Transparency of Printing Ink Sets for Four-Colour Printing – Part 1: Sheet-fed and heat-set web offset lithographic printing
- 2.2.3. ISO2846-2 Graphic Technology – Colour and Transparency of Printing Ink Sets for Four-Colour Printing – Part 2: Coldset offset lithographic printing
- 2.2.4. American Society of Testing and Materials (ASTM) D5403-93 Standard Test Methods for Volatile Content of Radiation Curable Materials
- 2.2.5. American Society of Testing and Materials (ASTM) D6419 Standard Test Method for Volatile Contents of Sheet-Fed and Coldset Web Offset Printing Inks
- 2.2.6. ASTM D4713 Standard Test Methods for Nonvolatile Content of Heatset and Liquid Printing Ink Systems

3. REQUIREMENTS

3.1. GENERAL REQUIREMENTS

- 3.1.1. Ink shall be suitable for application to G7 Certified Coldset printing ink to OSP to print on their printing presses.
- 3.1.2. Ink shall comply with Model Toxics in Packaging Legislation (formerly known as CONEG legislation).

3.2. MATERIAL

Ink for Envelopes and Forms – (Coldset Group)

- 3.2.1. Coldset inks must have a VOC of 2.5 lbs. /gal or less using the following two standard test methods for volatile content of coldset web offset printing inks: ASTM D6419 or EPA Method 24.
- 3.2.2. All coldset inks must be capable to make-ready in 100 sheets or less to match OSP Contract Proofs.
- 3.2.3. Envelope ink shall be delivered in 1 or 5-pound containers.
- 3.2.4. Forms ink shall be delivered in 5 or 30-pound containers.
- 3.2.5. Ink must meet the ISO 2846-2, which specifies the shade, pigment, body, tackiness, strength, color, and transparency to be produced by inks intended for four-color coldset offset lithographic printing.
<https://www.sis.se/api/document/preview/616601/>

Ink Kits and Totes – (Heatset Group)

- 3.2.6. All heatset inks must be capable to make-ready in 4000 cut-off sheets or less to match OSP Contract Proofs.
- 3.2.7. Heatset ink shall be delivered in 30-pound containers.
- 3.2.8. Heatset ink totes shall be delivered in 3500-pound containers.
- 3.2.9. All heatset inks must meet ISO 2846-1, which specifies the color and transparency characteristics to be met by each ink in a process color ink set intended for proof and production printing using offset lithography. Characteristics are specified for inks used for heatset:
<https://www.sis.se/api/document/preview/922345/>

Sheetfed Ink Kits

- 3.2.10. All sheetfed inks must have a VOC of 2.5 lbs. /gal or less using the following two standard test methods for volatile content of Sheetfed web offset printing inks: ASTM D6419 or EPA Method 24.
- 3.2.11. All sheetfed inks must be capable to make-ready in 300 sheets or less to match OSP Contract Proofs.
- 3.2.12. Sheetfed ink shall be delivered in 5, 17, or 30-pound containers.

- 3.2.13. All sheetfed inks must not develop a skin for a minimum of 72 hours unless ink contains extra driers on custom orders only.
- 3.2.14. Sheetfed inks must meet ISO 2846-1, which specifies the color and transparency characteristics that are to be met by each ink in a process color Ink set intended for proof and production printing using offset lithography. Characteristics are specified for inks used for sheetfed:
<https://www.sis.se/api/document/preview/922345/>

~~[LED UV Ink~~

- 3.2.15. **~~LED UV ink shall be in aqueous (liquid) form.~~**
- 3.2.16. **~~Ink shall be made from non-toxic, non-mutagenic, non-carcinogenic and non-reproductive toxic raw materials.~~**
- 3.2.17. **~~Ink pigment droplet shall be no larger than 200 nanometers.~~**
- 3.2.18. **~~Ink shall be scratch, abrasion and weather resistant up to one (1) year.~~**
- 3.2.19. **~~Ink shall be alkali (washable) soluble, copying resistant, alcohol and adhesive to paper.~~**
- 3.2.20. **~~Ink shall be free from VOCs per test method ASTM D5403-93.~~**
- 3.2.21. **~~Viscosity shall be between 300 centipoise and 10,000 centipoise at 25° C.~~**
- 3.2.22. **~~Print shall be readable under Light Emitting Diode (LED) light at 25° C.~~**
- 3.2.23. **~~Dry time 5 seconds maximum at 25° C~~**
- 3.2.24. **~~Storage life at least 6 months at 40° C maximum~~**
- 3.2.25. **~~Application storage shall be in metal cans for 5-lb package, in plastic containers (kits) for 30-lb package.~~**
- 3.2.26. **~~Delivery package shall be on wood pallet for 30-lb plastic containers (kits).]~~**

3.3. ENVIRONMENTAL PREFERRABLE PURCHASE (EPP) REQUIREMENTS

- 3.3.1. All ink must be water soluble
- 3.3.2. Volatile organic compounds (VOCs) in all inks must not exceed 0.2 lb. per U.S. gallon per EPA Method 24.
- 3.3.3. Ink for Envelopes and ink for Forms must contain a minimum of 60% bio-renewable content (BRC) and have the National Association of Printing Ink Manufacturers (Napim) Certification.
- 3.3.4. Heatset Ink kits and totes must contain a minimum of 60% bio-renewable content (BRC) and have the National Association of Printing Ink Manufacturers (Napim) Certification.
- 3.3.5. Sheetfed inks must contain a minimum of 50% bio-renewable content (BRC) and have the National Association of Printing Ink Manufacturers (Napim) Certification.

3.4. PERFORMANCE

- 3.4.1. Ink must not develop a skin for a minimum of 72 hours unless ink contains extra driers on custom orders only.
- 3.4.2. Ink must be able to transfer without hickey/piling issues on the plate or blanket with a dampening system engaged.
- 3.4.3. All inks provided under this contract shall be G7 Certified compliant.
- 3.4.4. Dot gain shall not exceed 2% tolerance with G7 calibrations.
- 3.4.5. All inks must be compatible with OSPs Fountain and Press Wash Solutions.
- 3.4.6. All inks must hold density plus or minus 5 points with a dampening system engaged (be formulated for OSP press operators to be able to hold density plus or minus 5 points at the Printing Press).
- 3.4.7. Upon request, the Contractor shall provide an "Ink draw-down." The ink draw-down is a means of evaluating the color mixing of a printing ink by depositing a layer of the mixed ink on the surface of a substrate using a smooth-edged knife or roller shall be performed. A draw-down is a basic test used to determine the accuracy of color matching. In addition, this test determines the compatibility of the various inks when combined.
- 3.4.8. All supplied inks reported VOC content that presents a range in the Safety Data Sheet OSP, and the (YSAQMD) shall use the top of the range to determine the VOC content.
- 3.4.9. All inks shall comply to Yolo-Solano Air Quality Management District (YSAQMD), RULE 2.29 GRAPHIC ARTS PRINTING OPERATIONS, VOC CONTENT LIMITS FOR MATERIALS USED IN GRAPHICS ARTS OPERATIONS: Link Below

<http://www.ysaqmd.org/wp-content/uploads/2019/10/AB-2588-2019.pdf>

3.5. PACKAGING / LABELING

The Contractor must provide a Package / Label placed on all the Ink containers with the following information:

- 3.5.1. Manufacturer Name or Brand Name of ink
- 3.5.2. Description Name of ink
- 3.5.3. Date of Manufacture (Month and Year)
- 3.5.4. PMS Number
- 3.5.5. Tack number
- 3.5.6. Formula code number
- 3.5.7. Hazardous Materials Identification System (HMIS Ratings) number
- 3.5.8. Volatile Organic Compound (VOC) Number
- 3.5.9. OSP Job Number, whenever referenced on OSP's ordering document

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