



Roll Paper
Requirements and
Specifications

Version 3.2
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Introduction

This document contains paper specifications, which will be periodically updated to reflect increasingly higher standards of quality and performance. As Worldcolor practices continuous improvement, it is expected that all paper suppliers will similarly employ programs to reduce variation and improve quality. The Worldcolor specifications apply to all paper consumed by Worldcolor North American printing facilities. This includes Customer Supplied, Customer Directed and Worldcolor Controlled paper. Additional or superseding requirements and specifications may be agreed to only by specific written agreement.

The intent of these requirements and specifications is to be a reference used in the context of mutually beneficial and timely root cause based problem resolution. It is our intent to actively communicate and partner with our suppliers to avoid excessive costs and adversarial or punitive actions.

Worldcolor recognizes that the paper manufacturing process is dynamic and is driven by changes in expectations, technology, economics and available materials. However, it is the responsibility our paper suppliers to maintain consistent fitness for use in all products supplied to Worldcolor. In the event that the discovery of a deficiency of any type of material or workmanship nature is identified, Worldcolor expects compensation for valid expenses.

Working with our suppliers, Worldcolor will make every effort to achieve customers' delivery and quality requirements. When requested by suppliers, Worldcolor may attempt to utilize problematic paper provided that the supplier accepts responsibility for all additional costs. Agreements to run shall be established and mutually agreed upon with plant personnel and acknowledged via facsimile, e-mail or other electronic means.

Worldcolor supports global efforts to protect our environment and encourages all paper suppliers to take reasonable actions to avoid the use of paper containing fiber from any controversial sources.

This document contains Worldcolor Overarching Roll Paper Specifications and Requirements. Specific Plant Requirements are referenced in Addendum B of this document. Specific Plant Requirements are periodically reviewed and updated by plant personnel designated by the Plant General Manager and approved by Worldcolor Procurement / Paper Operations.

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A. General Requirements and Specifications

1.0 Documentation

1.1 ANSI X12 Electronic Data Interchange

Worldcolor expects all paper suppliers to use electronic data interchange for paper trading partner transactions. The ANSI X12 EDI format is currently preferred. For additional details see Worldcolor B2B services and electronic invoicing at <http://www.worldcolor.com/main.aspx?id=350>. Please contact the designated North American Paper Director regarding X12 EDI Transaction Set Up.

1.2 papiNet® Specification

Worldcolor actively supports the **papiNet® specification**, the global electronic standards initiative for information exchange. At such time as Worldcolor is prepared for trading partner transactions using **papiNet®**, suppliers will be notified and a mutually agreeable plan for implementation will be developed and deployed.

1.3 Order Acknowledgement

Order acknowledgements are to be provided by facsimile, e-mail or other electronic means to the Worldcolor receiving location, preferably by the end of the business day following the day of receipt of the purchase order. These acknowledgements are required for paper purchased by Worldcolor as well as for paper purchased by Worldcolor customers for delivery to Worldcolor. Any changes in supplier activity that effect the content of the original Order Acknowledgement are to be communicated immediately, again by facsimile, e-mail or other electronic means.

Order Acknowledgements should contain the following information:

Mill order number	Customer or QW purchase order number
Paper type/grade	For Worldcolor Purchased, CWT Price
Order Last Date of Change (LDC)	Name of customer (for customer-purchased)
Core type & nominal diameter	Roll diameter (s)
Order quantity	Size (width)
Mode of transportation (if known)	Basis weight
Caliper/PPI (if ordered by caliper and not imbedded in product name)	Ship or Delivery Date (s)
Basic Size/Ream Size	Color (if other than white and not imbedded in product name)

Mill Machine Number (if known)	Customer Name, Title and/or Event Date
Mill Location (if known)	Total Quantity Ordered
Manufacture Date (if known)	*FSC, SFI or PEFC CoC Certification Number

* When Applicable for Chain of Custody Certified Paper Orders

1.4 Roll Manifests – Advanced Shipping Notice

All Roll Manifests are to be transmitted either electronically or by fax, AS INSTRUCTED BY THE INDIVIDUAL PLANTS per Addendum B, *Plant/Division-Specific Requirements and Specifications*, no later than the day of shipment. EDI transmissions must be in either ANSI X12 version 4010 (Advanced Shipping Notice transaction 856 version 4010) or EMBARC format, as requested by the individual plant or division. In all instances, a manifest must be received prior to delivery. All manifests must indicate:

• Name of shipper	• Worldcolor purchase order number
• Date shipped	• Name of customer and purchase order number (for customer-purchased paper)
• Targeted Delivery Date	• ² Title, Job Number and/or Event Date
• Paper type/grade	• Size (width)
• Mill order number	• Roll diameter(s)
• Railroad car or truck number	• Basis weight
• Total gross and net ¹ weight for all rolls in metric & imperial	• Individual rolls listed sequentially by number with net ¹ and/or gross weight for each roll
• Nominal core diameter	• Color (if other than white and not imbedded in product name)
• Basic Size/Ream Size	• Caliper/PPI (if ordered by caliper and not imbedded in product name)
•	• *FSC, SFI or PEFC CoC Certification Number

¹ See Worldcolor Roll Weight Definitions. ² When purchased for specific projects.

* When Applicable for Chain of Custody Certified Paper Orders

1.5 Labels

In general, roll labels and bar codes are to be in compliance with the IDEAlliance Standard 132-1997 *International Paper Roll and Package Label Specifications*, plus the provisions of this section, 1.4 Labels.

Each offset roll is to have a minimum of one side label, although two labels on opposite sides of the roll are preferred however suppliers are strongly encouraged to add a third label. Multiple roll packages and Rotogravure rolls are to have side label(s) and one label on the top end as placed in the rail car or truck. Labels shall include an adequate number of individual peel off labels to meet specific plant requirements for inventory and consumption controls. A separate bar code should be used for the roll number. Each label must indicate:

- Grade
- Net weight¹ (unless billed at gross weight and Net fields aren't available)
- Gross weight and/or Tare weight²
- Basic Size/Ream Size, Basis Weight
- Roll Width
- Roll length (measured length in linear feet, not length calculated assuming nominal basis weight)
- Log position (can be imbedded in roll number)
- Actual core outside diameter (to the nearest 0.01 inches)
- Customer name, title and/or event date and purchase order number*
- Supplier name (can be imbedded in Roll Number)
- Mill location name (can be imbedded in Roll Number)
- Roll number³
- Roll diameter
- Arrows indicating unwind direction
- Number of mill splices
- Core type
- Color (if other than white and not imbedded in product name)
- FSC, SFI or PEFC CoC Certification Number**

As specified in IDEAlliance Standard 132-1997, multi-packaged rolls should preferably have separate labels, as specified above, for each roll, but should, at a minimum, have separate roll numbers even if on one label. All roll size weight and measurements information should be in inches and pounds as well as millimeters and kilograms.

1.6 World Color Roll Weight Definitions

¹ See Worldcolor Roll Net Weight Definitions.

² See Worldcolor Roll Gross and Tare Weight Definitions.

³ See Addendum B – Plant Requirements and Specifications for NAPO Approved local plant/mill agreements for Roll IDs.

* When purchased by a merchant/broker, the merchant/broker is required to furnish the customer's name/order number to the mill.

** When Applicable for Chain of Custody Certified Paper Orders

Gross Roll Weight – Gross Weight is the total weight of a roll (including white paper, wrapper, headers, core, core caps, core plugs and any other receptacle, or conveyance).

Tare Weight - Tare Weight is the combined weight of the wrapper, headers, core, core caps, core plugs any other receptacle, or conveyance (no white paper).

Tare Deficit – Tare Deficit is the difference between the actual weight of the wrapper, headers, core, core caps, core plugs and any other receptacle or conveyance and the mill’s stated tare weight.

Net Roll Weight – Net Weight of a roll is derived by removing the combined Tare Weight of the wrapper, headers, core, core caps and core plugs or any other receptacle, or conveyance from the Gross Weight of the roll. Or stated differently, the true net weight of the printable paper. Also sometimes noted as ‘net net’.

1.7 Roll Stencils

Unless specifically ordered without stencilling for ‘rough front’ books or reel sensor fault prevention, each roll must have the roll number stencilled on at least one end, and preferably on both ends, of the unwrapped roll. When two rolls are wrapped in one package, each roll should preferably have individual stencils.

Roll stencils should be as close to the core as possible, and in no event more than 12 inches from the core so it does not interfere with auto paster detectors.

1.8 Chain-of-Custody Certified Logo Usage

Customers requesting that Worldcolor print a chain-of-custody (CoC) certified logo in their print work must agree to sign our Chain-of-Custody Logo Use Consent Form (see Addendum C). This form is intended to provide Worldcolor with assurance that our customers will not misuse any CoC logo that we provide to them for specific CoC certified print work. Additionally, customers acknowledge that in order to maintain conformance with FSC, SFI or PEFC requirements, they will not knowingly include non-certified paper containing fiber that originates from controversial or illegal sources in jobs that will carry an FSC, SFI or PEFC CoC label or logo. Worldcolor considers uncertified paper from North America and Western Europe to be of 'low risk'. Suppliers of ‘high risk’ paper (as defined by FSC, SFI or PEFC) are required to provide Worldcolor with a 'self declaration' that the ‘high risk’ uncertified paper does not contain fiber that originates from controversial or illegal sources before Worldcolor will use it on a job that will carry a CoC label or logo.

2.0 Overall Roll Specifications

2.1 Roll Dimensions – Diameter and Width

Actual diameters of rolls ordered must not exceed ordered diameters. For example, actual diameters of rolls ordered as 50" must not exceed 50"; actual diameters of rolls ordered as 48" must not exceed 48", etc. Minimum roll diameters must not be more than +0/-2" less than ordered diameter. Shipment of any rolls of less than 45" diameter requires prior approval of the Division to avoid a \$20.00 per roll charge. Under no circumstances should roll weights or sizes exceed individual Division limits as set forth in *Plant/Division-Specific Requirements and Specifications*, Addendum B.

Roll width variation for rolls must be in the range of -0 to +1/16" of ordered width, with the objective to be at the exact ordered width.

2.2 Cores

CORE TYPES AND SIZES VARY GREATLY BY PRESS AND REEL COMBINATION, AND PAPER SUPPLIERS SHOULD IN ALL CASES ADHERE TO THE DIVISION OR PLANT ORDER. However, in the absence of such, suppliers should contact the plant and request written verification Of the *Plant/Division-Specific Requirements and Specifications*. In either event, the inside diameter of 3" cores is to be no less than 3.0" (76 mm) or greater than 3.0625". The inside diameter of 6" cores is to be no less than 5.902" (150 mm) or greater than 6.032". The outside diameter of cores must be consistent in size within +/- 0.0250" per order for a job or production run.

All cores are to be flush with roll edge with maximum variation of -0" to +1/16". Worldcolor's expectation is to have all cores the same size as the paper. In the event cores are not the same size, and a local manufacturing plant experiences production problems associated with that variation, then a Mill Tech Representative will be contacted.

USE OF CORE PLUGS IS AT THE DISCRETION OF THE PLANTS. WHERE IT IS PRACTICAL FOR THE SUPPLIER TO DO SO SUPPLIERS SHOULD IN ALL CASES ADHERE TO THE DIVISION OR PLANT REQUIREMENTS AND SPECIFICATIONS IN ADDENDUM B, *Plant/Division-Specific Requirements and Specifications*. Core plugs, if provided, must preferably be notched or, at a minimum, have a hole for easy removal.

2.3 Packaging

Moisture resistant, recyclable wrappers and headers must be used. Plastic wrappers are unacceptable including when such plastic wraps are further wrapped with Kraft wrappers. Wrapping and packaging must meet or exceed requirements to protect the paper from both water and physical damage during handling, transporting, loading/unloading including during intermediate storage and transfer. Paper that has been repackaged and that hides existing damage may be rejected upon receipt or at discovery at press side. Repackaging/packaging

repairs to protect paper is acceptable. Roll Wrappers must exhibit a sufficient coefficient of friction to avoid slippage within the wrapper during handling.

2.4 Winding

Rolls must be well wound with even tension and draw, free from soft and flat spots and wrinkles, and not baggy. Additionally, all rolls must be suitable for normal press tension during start up, run and splice conditions. No water or scrap shall be used to start winding at the core. Rolls not meeting these requirements are subject to rejection.

2.5 Mill Splices

All splices must be suitable for heatset printing and be repulpable. Splices shall not cause changes in tension that would affect print reproduction quality, image position or additional waste.

Each splice is to be identified with a stencilled arrow on at least one end, and preferably both ends, of the roll, next to the splice, and positioned so that it is visible until the splice has been consumed.

Number and location:

- There shall be no more than thirty (30) splices per 100 rolls ordered
- There shall be no more than three (3) splices per roll for rolls over 45" in diameter, and two (2) splices per roll for rolls of 45" or less in diameter
- No splices shall be closer than 1" to the outside of a roll
- No splices shall be closer than 1" to each other
- No splices shall be within 5" of the core

3.0 General Specifications

3.1 Basis Weight

Average basis weight for an order should not exceed the basis weight indicated on the order. In the event that Worldcolor yield analysis indicates that basis weight varied from nominal weight, Worldcolor reserves the right to make claims against the paper supplier for increased costs resulting from basis weight variance.

For grades manufactured to caliper (PPI) such as 8pt. cover and book grades, overall basis weight variation by job shall have a tolerance of +3 / -3% of ordered basis weight.

In all cases, the basis weight calculations will be based on the 'Net Roll Weight' as defined by this specification. The calculation for basis weight shall be calculated based on the following definitions and calculations;

Fixed Waste Weight = the total combined weight in lbs. for concealed transit waste, warehouse waste, strip waste, expired core waste, sample cut waste and web break waste.

Sheet Factor = 475 if basis weight of paper is based on a 25"x38" sheet or, 432 if basis weight of paper is based on a 24"x36" sheet.

$$\text{Paper Factor} = \frac{\text{Roll Width} * \text{Basis Weight} * \text{Press Cutoff}}{\text{Sheet Factor}}$$

$$\text{BW Calc Lbs} = ((\text{Actual Gross Impressions} + \text{Actual Make-ready Impressions}) * \text{paper factor}) + \text{Fixed Waste}$$

$$\text{Basis Weight Variation} = \text{Actual Lbs Cons} - \text{BW Calc Lbs}$$

$$\% \text{ Basis Weight Variation} = \frac{\text{Actual Lbs Cons} - \text{BW Calc Lbs}}{\text{BW Calc Lbs}}$$

~ Actual Lbs. = Net Roll Weight as defined in section 1.6 World Color Roll Weight Definitions ~

For Worldcolor - purchased paper, basis weight variances will be netted out (pounds heavy minus pounds light from nominal). Where such net calculations show heavy paper, Worldcolor shall expect compensation for the pounds of excess paper at the average value of paper consumed. When Worldcolor plant specific yield analysis determines that paper from a specific order is Over-Basis-Weight, the plant shall contact the supplier/mill who in turn shall provide supporting basis weight data taken from the Log Profile from which each roll was trimmed. This data together with the mill calculated linear feet data for each roll is to be compared with the plant specific yield analysis by the mill representatives who will follow up with the plant to resolve the discrepancy. When resolution is not achieved between the plant and mill Worldcolor North America Paper Operations will assist with final resolution.

Where Worldcolor is held accountable by customers for waste performance of customer-supplied paper, Worldcolor reserves the right to pass these over-basis-weight costs/adjustments on to directly to owners or suppliers. These costs will be routed through debit/credit/invoice systems or processes, or in another mutually agreeable alternative method negotiated with the owners or suppliers, that portion of Worldcolor's substantiated costs/adjustments attributable to over-basis-weight paper.

Worldcolor North America Paper Operations Group may exercise the option for the transition to purchase/consumption agreements with suppliers based on linear feet following due notification.

3.2 Web Breaks

- Paper quality must be such that web breaks during production shall be minimized.
- Web break tolerances are defined as a percentage of the number of rolls ran and are based on 25x38 basis weight.
- Paper related web breaks will be charged as follows:
 - All Paper $\geq 28\#$ (25x38) – **Runs of 50 rolls or more:**
 - Where evidence exists that the cause is poor quality, web breaks shall be limited to a maximum of 2%.
 - Paper caused web breaks plus 50% of unknown web breaks believed to be paper caused by their pattern, shall be limited to a combined total of 3%, even in the absence of evidence, but based on World Color production records.

The following examples will be claimable:

60 Rolls Run

1 break with paper defect evidence

3 breaks without paper defect evidence (3 x 50% = 1.5)

Total 2.5 breaks / 60 rolls = 4.2%

60 Rolls Run

3 break with paper defect evidence

0 breaks without paper defect evidence

Total 3.0 breaks / 60 rolls = 5%

60 Rolls Run

0 breaks with paper defect evidence

5 breaks without paper defect evidence (5 x 50% = 2.5)

Total 2.5 breaks / 60 rolls = 4.2%

- All Paper $\geq 28\#$ (25x38) – **Runs of fewer than 50 rolls:**
 - Individual rolls with two (2) or more paper-caused web breaks with evidence, or three (3) or more web breaks with or without evidence, may be subject to case-by-case review or rejected subject to written (email, fax, etc.) mill technical representative agreement.
 - All Paper $< 28\#$ shall refer to World Color Local Plant Specifications.
- Whenever possible, Worldcolor will provide all evidence to support web break claims.
- When web break frequency exceeds Worldcolor tolerances, the paper supplier will be immediately notified and such paper may be rejected, or Worldcolor may file a claim for compensation according to the provisions of these *Roll Paper Requirements and Specifications*.

3.3 Fold Strength

All paper is to have adequate fold strength so as not to split and/or tear under normal pressroom or bindery conditions.

3.4 Optical Properties – Printability/Runability

Based on the supplier specifications and measured by accepted industry testing standards such as TAPPI and/or IDEAlliance, Worldcolor Standard Operating Procedures for color management should not require any extreme extraordinary actions due to the paper's color, surface characteristics, optical properties or dispersion of anything in, on or within the paper. Suppliers will be responsible/accountable for assuring that supplied paper meets their published specifications within a statistically valid tolerance determined and substantiated by them upon request from a Worldcolor Plant. Worldcolor will make reasonable attempts to notify mill technical personnel as optical property problems arise to encourage their assistance in troubleshooting/problem solving to keep costs at a minimum and to achieve the quickest resolution possible. The costs associated with extraordinary actions taken by Worldcolor to meet accepted industry standards or customer requirements for achieving acceptable color match

and/or consistency due to problems with optical properties of supplied paper may be considered an out of specification paper due to defects in materials and/or workmanship. When this occurs Worldcolor will collect evidence and document the costs associated with the extraordinary actions, and the cost of extended production due to slow downs and/or down time. The evidence, a cost summary and documentation supporting the evidence and costs will be forwarded to the paper supplier in the form of a claim.

3.5 Fitness For Use Printability/Runability/Machineability

Based on the supplier specifications and measured by accepted industry testing standards such as TAPPI and IDEAlliance, the supplier paper is to be suitable and fit for its intended use for both printing and finishing operations regarding its strength, resolution capability, color characteristics and its physical characteristics including but not limited to the following which are presented here only as examples: Reasonably dimensionally stable (i.e. not baggy – not prone to shrink or stretch), reasonably free from dust, dirt and lint Suitable moisture content, tendency to contribute to fluting, visual mottle, poor pick resistance, fold strength weakness, fold endurance weakness, high or low stiffness, low tearing resistance, low tensile strength, high or low porosity, poor smoothness, high or low coefficient of friction, high or low absorption, inability to withstand conventional UV and aqueous coating applications, poor ink hold out, poor uniformity, poor consistency, poor dispersion of fillers and pigments, poor filler (pigment)/fibre ratio, poor saddle stitch holding, poor perfect bind adhesion, poor roll tension/telescoping , ‘out of round roll’ etc.

3.6 Blanket Build-up

Linting or blanket build-up, when local standard operating procedures regarding automatic or manual blanket washing are followed, should not require any additional extraordinary manual wash-ups. Worldcolor plants may calculate the historical average minimum amount of actual impressions between wash-ups by paper type based on the specific plants' production data history. These historical base lines shall be communicated to the supplier and shall be subject to review by the supplier on a case-by-case basis. In the absence of an established plant minimum the general Worldcolor expectation for wash ups is that they shall not be more frequently than every other roll (for multiple web jobs – every other roll on one web).

When paper-caused problems, such as blanket build-up, slitter dust, coating scale, blistering or shrinkage, or other paper problems cause excessive press downtime or press slowdown due to blanket build-up, this shall be considered a nonconformance to these ***Roll Paper Requirements and Specifications***.

When paper is suspected or identified as the cause of extraordinarily frequent blanket wash-ups the Worldcolor plant affected will take immediate action to contact mill technical support personnel for assistance. In addition, plant personnel will collect evidence and document the costs associated with the additional wash-ups, including additional waste, and the cost of extended production due to press slow downs and/or down time. The evidence, a cost summary and documentation supporting the evidence and costs will be forwarded to the paper supplier in the form of a claim. Worldcolor will make all reasonable attempts to keep costs at a minimum and to achieve the quickest resolution possible subject to our ability to meet Customer quality requirements and delivery schedules. See Section B and Addendum A for additional information.

3.7 Strength and Caliper Uniformity

All paper is to have consistent, uniform strength (tensile, tear, Mullen, etc.). Normal spot-to-spot variation in strength within a roll shall not exceed +/- 15%. Caliper, when specified on the original purchase order shall not vary by more than +/- 0.0002" across the roll.

3.8 Certificate Of Assurance

Upon request, World Color plants require a Certificate Of Assurance for paper provided for each order that contain mills analysis of their published product specifications taken from the source logs for the specific order. This Certificate Of Analysis may be requested for delivery at the plant with delivery of the order or, after consumption of the paper when historical data is required for analysis.

4.0 Ordering, Loading and Shipping

4.1 Ordering

Paper roll specifications for paper ordered by Worldcolor Customers, for printing that Worldcolor will provide to that Customer, shall adhere to World Color *Plant/Division-Specific Requirements and Specifications, Addendum B*. Paper roll specifications include, but are not limited to, roll width, roll diameters, core size and type, core inserts or caps, and maximum roll weights.

Worldcolor Customers supplying paper for printing events shall adhere to the preferred guideline of single source supply for any specific printing event that a Worldcolor Division shall print. This requires that no more than one grade from a specific paper supplier be utilized to supply paper for any printing event in a specific Division.

Wherever possible, Worldcolor requires that the quantity of suppliers chosen to supply paper to the Plants be managed and limited so as to regularly align paper suppliers with specific Plants.

Customers of Worldcolor ordering paper for printing events shall provide advanced notice of their paper orders to the appropriate Plants.

4.2 Loading and Shipping

All railcars and trucks are to be loaded with rolls on end. Rail shipments shall be loaded in a suitable pattern to allow unloading from either side. Cars with cushioned under-frames and at least 10-foot wide doors are preferred. Railcar door height must provide at least 3 inches of clearance in unloading rolls. Bilge loading is prohibited unless previously approved by the Worldcolor Division. Railcar loading shall be in accordance with the Association of American Railroads Pamphlet 39 or other loading and bracing methods approved by the American Railroads Freight and Damage Prevention Division. Use of non-metallic strapping is preferred, and if metal strapping is used, shipper must make sure that protective material is used between the lading and the metal strapping to prevent damage.

Worldcolor encourages the use of recyclable dunnage (i.e. corrugated material, etc.) and the use of air bags with relief valves. Restricting the use of metal bands for securement will reduce or eliminate safety incidents when unloading paper shipments. Synthetic strapping/webbing is now as strong and durable as steel and can be used (TYVEK) see WSTDA (Web Sling Tie Down Association in Cargo Securement Act).

Bilge loading in trucks or containers is prohibited unless previously approved by the Worldcolor Division. Loading of rolls too large to stand upright in trucks requires prior approval of the Division and requires use of appropriate cradles (see Addendum B, *Plant/Division-Specific Requirements and Specifications*). Mills in situations where they cannot rail ship in time and have to ship wider web paper via OTR on bilge therefore, shall provide or coordinate the availability of a mechanism for unloading.

Railcars and trucks should preferably be loaded by log position. If that is not possible, then, preferably, rolls from the same log position will be identified via color-coding or some other highly visible means, so that they can be segregated upon unloading for storage and/or selection by log position.

4.3 Over/Under Quantities

Order quantities are developed assuming full rolls to the nearest full roll, or set of rolls (for jobs running two webs – i.e. order even number), needed to obtain the quantity of paper required to print a specific event or job. Recognizing this, overrun quantities are limited to an amount equal to up to one full roll, or set of rolls, above the ordered quantity. Quantities in excess of one full roll or set of rolls, above the ordered quantity are subject to rejection. The tolerance for under delivery is - 0% of ordered quantity.

4.4 Early/Late Deliveries

For orders of up to 300,000 pounds paper delivered up to and including five (5) calendar days for rail and three (3) calendar days for truck, prior to the mutually agreed-upon and acknowledged delivery date shall be considered on time. For orders greater than 300,000 pounds, delivery windows should be agreed upon with the receiving Worldcolor facility. All paper delivery dates are the actual physical in plant delivery dates established and mutually agreed upon between paper suppliers and plant personnel. Orders and any order revisions shall be acknowledged via facsimile, e-mail or other electronic means sent to and verified by the Worldcolor receiving location at the time orders are placed or last revised. Early/late deliveries shall be evaluated relative to the last mutually agreed-upon and acknowledged physical in plant delivery date. Worldcolor locations with warehouse storage constraints have tighter delivery windows that are mutually agreed to and established by written agreements with suppliers which are set forth in *Plant/Division-Specific Requirements and Specifications*, Addendum B. On time delivery measurements for these facilities will be based upon the criteria in these written agreements. In all cases, early/late deliveries shall be evaluated relative to the last mutually agreed-upon and acknowledged delivery date.

4.5 Inventory

Inventory utilization – Worldcolor requires its Customers, which supply their own paper, to allocate available paper inventories to printing events so as to limit the amount of Customer paper inventory located at the Plants. Excessive paper purchases and inventory levels are subject to storage and/or additional handling fees as incurred, including but not limited to railroad demurrage costs and other excess freight.

4.6 Purchase Order Revision Requirements

A revised purchase order shall confirm all/any revisions to orders that have been mutually agreed to between the Worldcolor plant, our customers, suppliers and/or mills. Revisions that require changes in the 'trim' at the mill that affects paper orders for other Worldcolor plants shall also receive confirming revised purchased orders.

B. Paper Claim/Rejection Process

1.0 Worldcolor Notification

In the event that World Color determines that paper has been received, or used, that is not in conformance with these ***Roll Paper Requirements and Specifications***, Worldcolor plants shall make reasonable attempts, including off shift and weekend arrangements, to notify the appropriate mill or paper supplier representative as soon as possible provided that current supplier contact information has been provided to the Worldcolor plant personnel by the supplier, but in no event more than 10 days after such determination. Should such incidents involve press slow down or shut down, or other factors likely to result in a large financial exposure, Worldcolor will attempt to notify the supplier quickly, immediately if possible, but in no event later than 24 hours from the initial awareness of the problem. Whenever possible, such notification shall be in writing via facsimile, e-mail or other electronic means but, for incidents occurring outside of normal week day business hours; such notification may be by telephone. The objective of such notification will be to allow the supplier to participate in the most cost-effective resolution. However, should such supplier-suggested resolution jeopardize Worldcolor ability to meet our customer's expectations for quality and delivery schedules, Worldcolor reserves the right to act independently to meet these expectations and, if paper proves to be defective will expect the supplier to reimburse Worldcolor for the cost of doing so.

2.0 Paper Supplier Responsibilities

Upon notification by Worldcolor of failure to conform to these ***Roll Paper Requirements and Specifications***, as soon as possible, but in no event more than 15 days after such notification, the supplier shall contact Worldcolor, analyze the Worldcolor claims, and reach a determination regarding such claims and the intended disposition of any remaining paper and associated waste. This time deadline can be extended upon mutual agreement between the supplier and Worldcolor for the purpose of further analysis, testing or production runs. Information regarding disputed claims that remain unresolved and at an impasse between the plant and supplier after 30 calendar days, or has/is considered to be dormant due to failure of the supplier to respond or communicate after 45 calendar days will be forwarded to Worldcolor North America Procurement Operations for resolution assistance.

3.0 Paper Disposition

Following the agreement made within 15 Days with the supplier regarding Worldcolor claims, and agreement on a plan for paper disposition, the supplier shall have 30 days to implement such agreement. In the event the supplier fails to complete its agreed-to actions within 30 days, or any other agreed-upon time frame, or fails to respond at all within the established 45 day maximum deadline, Worldcolor shall have the option to sell any remaining paper as scrap or put rejected paper in a suitable warehouse. In either case, the cost associated with either disposition will be the responsibility of the mill or supplier

4.0 Claims Filed For Worldcolor Owned Papers

Notification of transit and performance claims will be filed directly with the originating paper supplier. Exceptions are allowed following mutual agreement between the supplier and the Worldcolor plant. Claims are to be resolved within 30 calendar days from the file date. Documented mill/supplier agreements may take precedence and supersede items in this paragraph. Refer to Addendum A – Claim Tolerances for issue specific charges.

5.0 Claims Filed For Customer Owned Papers

Worldcolor will act in receiving Customer owned paper as if it were purchased for its own account using the same care and diligence in its inspections and observing all requirements in filing claims for transit and performance damage whenever necessary. The customer will arrange to furnish or have furnished directly to Worldcolor plants such data and other records necessary for filing such claims. Notification of transit and performance claims will be filed directly with the Customer. Claimed Paper amounts will be removed from the Customer's Inventory and performance claims costs will be invoiced to the Customer. Reimbursement for claims costs from the paper supplier to the Customer will be the Customer's responsibility. Documented customer agreements may take precedence and supersede items in this paragraph. . Refer to Addendum A – Claim Tolerances for issue specific charges.

Addendum A - Claim Tolerances

This Addendum is intended to establish a set of standard costs and minimum amounts for selected elements of claims that may be submitted by Worldcolor. CLAIMS ARE NOT LIMITED TO ONLY THOSE AREAS ADDRESSED IN THIS ADDENDUM, BUT MAY INCLUDE AREAS, AMOUNTS AND/OR CHARGES THAT ARE IN ADDITION TO THOSE SPECIFIED IN THIS ADDENDUM. Worldcolor will make reasonable attempts to immediately notify mill technical personnel as problems arise to encourage their assistance and involvement in troubleshooting/problem solving to keep costs at a minimum and to achieve the quickest and lowest cost resolution possible.

The amounts and minimums set forth in this Addendum are in U.S. dollars, and shall be subject to change from time to time based upon Worldcolor reassessment of appropriate costs and effort necessary to deal with situations not conforming to these *Roll Paper Requirements and Specifications*.

No transit or performance claims, including claims for basis weight, will be filed for any reason for amounts under \$150 or 300 lbs per shipping container, however no dollar minimum shall apply to rejected rolls.

1.0 Documentation Claims

Failure to provide roll manifests or roll lists, whether electronically or by facsimile, prior to delivery, where such failure requires manual data entry of roll-level detail, shall result in a charge of \$500 per rail car and \$300 per truck. If individual Plants require electronic manifests in a particular electronic format (see *Plant/Division-Specific Requirements and Specifications*) for the purpose of automated (non-manual) entry of roll-level detail, failure to provide such particular format, or formats enabling automated (non-manual) entry of roll-level detail, even if manifests are provided by fax or in other electronic format, shall result in a charge of \$500 per rail car and \$300 per truck.

It is recognized that at this time the industry practices on roll labels, and in particular roll net weight, may not conform to these *Roll Paper Requirements and Specifications*. Thus, claims will not at this time be considered for failure to conform to roll label requirements and specifications. Additionally, claims will not be considered for omissions of content in Order Acknowledgements or Manifests, provided that Order Acknowledgements and Manifests are provided in accordance with the individual mill/suppliers' general practices, and in accordance with the timing, and electronic format, set forth in these *Roll Paper Requirements and Specifications*.

2.0 Roll Size Claims

Rolls received with larger diameters than ordered shall be subject to rejection with credit/charge back for the full amount and value of the roll. In the event these rolls are discovered to be of too large diameter at the time of attempted use on-press, a one time handling charge of \$20.00 per roll will apply. In the event rolls require stripping down to fit the press actual additional roll preparation costs and the value of paper waste will be claimed.

Rolls received with diameters less than the allowed 2" below ordered diameter shall be subject to rejection or a minimum one time handling charge of \$20.00 per roll.

3.0 Web Break Claims

Web break claim costs shall be charged at customer contractual rates when paper is customer supplied or customer directed. For Worldcolor purchased paper the minimum web break claim costs for are defined in the matrix below. Any cost of web breaks above these charges would be only by exception or unusual charges covering lost press time, the cost of consumable materials, parts, components, variable labor costs for excessive re-webbing the press and/or charges for additional waste. Below are the minimum charges and waste amounts based on average costs per press family:

Press Type/Size	Charge Per Break	Waste Impressions
Offset Small Narrow Web, M110	\$300	1,500
Offset Intermediate G14 M1000B	\$500	1,700
Offset Intermediate M1000BE+	\$500	1,700
Offset Directory All (except 48 - 64 pg)	\$400	1,300
Offset Broad (48 - 64 pg) C700 N900	\$500	2,000
Offset Large (48 pg) Man Roland-Goss-Directory	\$550	2,500
Offset Large Wide (64 pg) Man Roland-Goss	\$825	2,500
Gravure Small = ≤ 72 "	\$550	2,000
Gravure Intermediate = ≥ 73 " to 80"	\$850	2,400
Gravure Large = ≥ 81 " to 125"	\$935	2,400
Gravure Large Wide = ≥ 126 "	\$1,020	2,400

4.0 Loading and Shipping Claims

Transit damage claims will be filed only when the claim amount exceeds \$150 or 300 lbs. per vehicle (rail car or truck). A roll with 2 inches or more of damage may be considered a total loss and Worldcolor reserves the right to either return, (with mutual agreement with the specific mill and plant) ‘slab off’ the damage or scrap the roll, as agreed to by the supplier, and at the supplier’s expense which may include additional handling and labor charges. Rolls with observed transit damage to the printable paper will be assumed to have a minimum of 1/8 inch of damage unless actual measurements indicate greater damage. Rolls with scuffed wrappers and no visible damage to paper will not be considered to have transit damage upon receipt but will be subject to claims for hidden damage that is subsequently discovered.

Digital photographs and notations on the manifest providing evidence of ‘humping’ shall make all rolls in that load eligible for hidden transit damage claims. Rolls with end damage more than 2 inches from the outside edge will be used at Worldcolor discretion, depending on the need for the undamaged paper to achieve press counts. Costs incurred in attempting to use such rolls shall be valid costs for claim purposes.

Tension problems that cause print quality issues, web breaks, running at reduced speed or other interference or disruptions with operations that are the result of rolls that were ‘out-of-round’ are subject to claims by Worldcolor for the costs incurred in using or attempting to use such rolls exclusive of any consideration regarding breaks per hundred.

Transit damage claims that are identified upon receipt, will be filed within 60 days. Concealed damage, with appropriate supporting evidence and documentation, can be claimed within 180 days of receipt.

Paper delivered early (see Section 4.4 Early/Late Delivery Window) will be charged for inventory and early handling costs. This charge will be \$.20 per cwt. per day and may additionally include demurrage fees. In no case shall paper arrive more than 15 days prior to the agreed upon delivery date without prior written agreement between Worldcolor and the paper supplier. Orders not complying will not be accepted.

If paper is delivered late or the quantity delivered is below the tolerances in these ***Roll Paper Requirements and Specifications***, all Worldcolor expenses, including, but not limited to, transportation, handling and incrementally higher pricing for replacement paper, shall be valid charges. Product not delivered in time for standard and customary receiving, inspection, processing and press make ready shall be subject to claim for additional incurred expenses. If handling charges are assessed for any nonconformance with these ***Roll Paper Requirements and Specifications***, they will be charged a one time fee at the rate of \$20.00 per roll for all rolls that have been accepted into inventory to cover the costs of additional transport, handling and administrative tracking.

Addendum B – Plant/Division Specific Requirements and Specifications

Note: The location-specific specifications, along with this document, are posted on the World Color Web Site <http://www.Worldcolor.com> and can be viewed by making the Customer Document selection and then selecting the option for individual facility specifications.

United States Plants

Atglen, PA
Atlanta, GA
Augusta, GA (Evans)
Buffalo, NY (Depew)
Clarksville, TN
Corinth, MS
Dallas, TX
Dickson, TN
Dubuque, IA
Dyersburg, TN
Effingham, IL (Petty Printing)
Enfield, CT (Infiniti Graphics)
Fairfield, PA
Fernley, NV
Franklin, KY
Hazleton, PA
Jonesboro, AR
Lebanon, OH
Leominster, MA (Eusey Press)
Loveland, CO
Martinsburg, WV
Memphis, TN
Merced, CA
Midland, MI (Pendell)
Mt. Morris, IL
Nashville, TN
Oberlin, OH
Olive Branch, MS
Pittsburg, CA
Richmond, VA
Riverside, CA
St. Cloud, MN
Stillwater, OK
Taunton, MA (Book Services)
Taunton, MA (Retail)
Versailles, KY

Waukee, IA
Winchester, VA

Canadian Plants

Aurora, Ontario (Aurora Division)
Bromont, Quebec
Concord, Ontario (Concord Division)
Dartmouth, Nova Scotia (Atlantic Dartmouth)
Edmonton, Alberta
Etobicoke, Ontario
LaSalle, Quebec (LaSalle Division)
Magog, Quebec (Magog Division)
Montréal, Quebec (Montréal Division)
Port Coquitlam, British Columbia (Web Press Graphics Div.)
Richmond Hill, Ontario (Richmond Hill Division)
St-Jean-sur-le-Richelieu (St-Jean Division)
St-Romuald, Quebec (St-Romuald Division)