printing standard network
ISO 12647 compliant

Offset Printing (SFO, HSWO) – ISO 12647-2
Newspaper Printing (CSWO) – ISO 12647-3
Gravure Publication Printing – ISO 12647-4

Optimisation of Printing Processes – ISO 12647

Benefits of Application and further Development of Standard Printing Conditions –

Experiences, Best Practices of European Printing Companies (Offset, Gravure, Digital Printing)

PSN Expert Meeting
ISO TC 130 Graphic Technology
DIN Berlin 14 April 2011

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Bernhard Schmidt | Prinovis Nürnberg (DE)
Head of Prepress Operations | Gravure Working Group ECI (chair)
Gravure Prepress Group bvdm (chair)

"For more than twelve years, European gravure printers have followed the call of the print buyers 'Make printing simple!' by developing the Process Standard Rotogravure (PSR), based on the principles of ISO 12647-4. More than 80 percent of delivered data for gravure publication printing in Europe today are according to PSR. The customer satisfaction gained by the use of PSR is very high. Leading European magazine and catalogue customers were involved in the development (Gravure Working Group ECI) from the very beginning. In 2009 and 2010, a comprehensive update of the PSR (V2) took place enabling further, significant improvements in prepress and printing processes."

„Seit mehr als zwölf Jahren folgen europäische Tiefdruckereien mit der konsequenten Weiterentwicklung des ProzessStandard Tiefdruck gemäß den Prinzipien der ISO 12647-4 dem Kundenwunsch „Macht Drucken einfach!". Über 80 Prozent der Daten für den Illustrations-Tiefdruck in Europa werden heute nach PSR geliefert. Die dadurch erreichte Kundenzufriedenheit ist sehr hoch. Die Magazin- und Katalogkunden waren von Beginn an in die Entwicklung einbezogen. 2009 und 2010 erfolgte ein umfassendes Update der Standard-Druckbedingungen für den PSR (V2), was weitere, deutliche Verbesserungen in Druckvorstufe und Druck ermöglichte."

Printers, print buyers and organisations contributing to PSR development
Gravure Working Group ECI (2001-2010)

Argos Retail Group (UK)
Axel Springer AG (DE)
Bauer Media Group (PL)
Broschek Tiefdruck (DE)
Burda Druck GmbH (DE)
Bundesverband Druck und Medien (bvdm)
D.C. Thomson & Co. Ltd (UK)
eurohueco S.A. (ES)
European Color Initiative (ECI)
European Rotogravure Association (ERA)
GMG GmbH & Co. KG (DE)
Helio Charleroi S.A./NV (BE)
Helprint Oy (FI)
Ilte S.p.A. (IT)
Imprimerie et Ed. Braun S.A. (FR)
Inter IKEA Systems Service AB (SE)
La Redoute Catalogue (FR)
Littlewoods Home Shopping Group (UK)
Mondadori Printing S.p.A (IT)
Neckermann Versand AG (DE)
Otto Versand AG (DE)
Polestar Purnell Ltd (UK)
Prinovis GmbH (DE)
Prinovis Ltd. Liverpool (UK)
Prisma Presse (FR)
Ringier Print Zofingen AG (CH)
RSDB Roto Smeets Etten (NL)
Schlott Gruppe (DE)
TSB Tiefdruck Schwann-Bagel (DE)

Printing condition (PT)	Profile description	Name of profile file	Characterisation data[3]
LWC Plus[1] (Improved LWC)	PSR LWC PLUS V2 PT	PSR_LWC_PLUS_V2_PT.icc	ECI_PSR_LWC_PLUS_V2.txt
LWC Standard (Light Weight Coated)	PSR LWC STD V2 PT	PSR_LWC_STD_V2_PT.icc	ECI_PSR_LWC_STD_V2.txt
SC Plus	PSR SC Plus V2 PT	PSR_SC_Plus_V2_PT.icc	ECI_PSR_SC_Plus_V2_PT.txt
SC Standard (Super Calendered)	PSR SC STD V2 PT	PSR_SC_STD_V2_PT.icc	ECI_PSR_SC_STD_V2.txt
News Plus[2]	PSR gravure MF	PSRgravureMF.icc	PSRgravureMF_ECI2002.txt

Profile names, characterisation data Process Standard Rotogravure (PSR) (ISO 12647-4). Download of profiles: www.eci.org
(1) LWC Plus replaces the former HWC. (2) News Plus are improved newsprint papers for gravure printing, the pertinent standard profile is PSRgravureMF.icc.(3) The characterisation data were measured on unprinted sheets of the same substrate (SB=substrate backing).

Erkki Hänninen | Hansaprint Oy, Turku, (FI)
Project Manager | Member of ECI Web Offset Working Group (WOWG)

"Since 2008, Hansaprint has followed the ISO 12647-2 standard in print production and offered our customers only the standard ISO and PSO profiles instead of former in-house profiles. This has proved beneficial for both us and our customers. The quality of the profiles is very high and the simulation (proof) of the profiles corresponds accurately to the printing. Once the iNP (improved newsprint) profile is available later in 2011, the supply of profiles will cover rather well all of our production. We are very satisfied with the cooperation and the work done by the ECI Web Offset Working Group."

"Vuodesta 2008 lähtien on Hansaprint noudattanut ISO 12647-2 standardia tuotannossaan ja tarjonnut asiakkailleen pelkästään ISO ja PSO standardin mukaisia painoprofiileja aikaisemmin käytettyjen omien ns. in-house profiilien sijasta. Tämä on osoittautunut suureksi eduksi sekä meille itsellemme että myös asiakkaillemme. Standardiprofiilien laatu on erittäin korkea ja niiden simulointi (vedos) todellakin vastaa painettua. Kun tekeillä oleva iNP profiili valmistuu myöhemmin vuonna 2011, kattaa profiilitarjonta varsin hyvin koko tuotantomme. Olemme erittäin tyytyväisiä yhteistyöhön ECI Web Offset Working Groupin kanssa ja erityisesti työryhmän saavuttamiin tuloksiin."

Peter Korsmit | Roto Smeets Group, Deventer (NL)
Senior Workflow Engineer | Member of ECI Web Offset Working Group (WOWG)

"In the market operations of the Roto Smeets Group, production according to and connection with industry standards is neccesary. Partly through the efforts of the ECI Web Offset Working Group (WOWG) we have reached uniform HSWO market standards compliant to ISO12647-2. All our offset printing facilities are certified and produce according to the ISO 12647-2 based standard printing conditions.

For that reason, it is important in current markets to continuously have a broad-based availability of characterisation data sets and colour profiles that meet the needs of our customers (products). The participation of Roto Smeets Group at ECI WOWG enabled us to tune the joint developments of these market standards and to support and communicate them within the industry. Thus, a broad basis for implementation of unambiguous and more effective colour profiles in the HSWO printing industry was created."

"In de markt waarin RotoSmeets Group opereert is produceren conform en aansuiten op marktstandaards noodzakelijk. Mede door de inspanning van o.a. ECI Web Offset Work Group (WOWG) is het mogelijk om een eenduidige marktstandaard als ISO12647-2 te hebben. Al onze offsetdrukkerijen zijn ISO 12647-2 gecertificeerd en produceren volgens deze normeringen.

Om die reden is het belangrijk continue actuele en marktbreed gedragen karakterisatie sets en kleurprofielen beschikbaar te hebben die aansluiten op de wensen van onze klanten. Door de deelname van Roto Smeets Group aan de ECI WOWG is het mogelijke deze ontwikkeling gezamenlijk af te stemmen en uit te dragen binnen de industrie. Hierdoor ontstaat een breed draagvlak en is de implementatie van kleurprofielen binnen de industrie eenduidiger en effectiever."

Printing condition, paper type (PT) Tone value sum (TVS)	Profile description	Name of profile file	Characteri-sation data
Offset** PT 3, TVS 300 %	PSO LWC Improved (ECI)	PSO_LWC_Improved_eci.icc	FOGRA45
Offset** PT 3, TVS 300 %	PSO LWC Standard (ECI)	PSO_LWC_Standard_eci.icc	FOGRA46
Offset Super Calendered Paper, TVS 270 %	SC Paper (ECI)	SC_paper_eci.icc	FOGRA40
Offset Machine Finished Coated Paper, TVS 280 %	PSO MFC Paper (ECI)	PSO_MFC_paper_eci.icc	FOGRA41
Offset Standard Newsprint Paper (Heat-set), TVS 260 %	PSO SNP Paper (ECI)	PSO_SNP_paper_eci.icc	FOGRA42

Profile names, characterisation data Process Standard Offset Printing (ISO 12647-2). Profiles and characterisation data FOGRA45, FOGRA46, FOGRA40, FOGRA41,and FOGRA42 are based on reference print series (2005-2009) of Web Offset Working Group (ECI). Tone value sum (TVS): maximum value. Characterisation data (download: www.fogra.org) and profiles (download: www.eci.org). A standard printing condition for improved newsprint papers (HSWO) is under development, publication in summer 2011.

ECI Web Offset Working Group – Development of Standard Printing Conditions HSWO

ISO 12647-2 based | Test print series 2005-2010 | Development of CharData and ICC Profiles

European web offset printers from Belgium, Finland, France, Germany, The Netherlands, Norway,Poland, Switzerland jointly developed standard printing conditions for HSWO. Experts from ECI and bvdm, paper manufacturers and observers from USA (via maillist) contributed to the work.

The Aims: to develop new standard printing conditions for web offset printing on papers frequently used in HSWO. Addition to the (only) existing LWC standard (Paper Type 3) in ISO 12647-2:2004. Input to comprehensive revision of ISO 12647-2 (2010 ff).

The Results: The additional standard printing conditions for HSWO enhance the practical use of ISO 12647-2. Printers and print buyers are using these high quality profiles worldwide, day-to-day. The feedback of the industry is very positive: "Overall better workflow and quality management".

Test print series at European HSWO printers (2005-2010) – more than 45 print runs

- **Hansaprint Oy, Turku (FI)**
- **Maury Eurolivres, Manchecourt (FR)**
- **Mohn Media, Gütersloh (DE)**
- **Swissprinters Ringier AG, Zofingen (CH)**
- **Roularta Group, Roeselare (BE)**
- **Roto Smeets RSDB Senefelder, Doetinchem (NL)**
- **RR Donnelley, Kraków (PL)**
- **Stark Druck, Pforzheim (DE)**

Provision of papers by paper manufacturers (2005-2010) – more than 120 reels

- **Holmen (Holmen XLNT)**
- **M-real (Galerie Lite, Galerie Brite)**
- **Myllykoski (LP-HO, My Brite)**
- **Norske Skog (Norset)**
- **StoraEnso (Publipress, SolarisPress, Exopress 68)**
- **SCA (Graphoset)**
- **UPM (UPM Satin, Ultra H, Cote H, UPM max)**

Paper manufacturers monitored test print runs (option).

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Urs Schaub | Swissprinters Ringier AG, Zofingen (CH)
Manager Prepress, Process and Quality Control
Member of ECI Web Offset Working Group (WOWG)

"In daily life we are surrounded by standards, such as the units litre, metre and kilogramme – all of which are indispensable. Exactly the same applies to PSO (Process Standard Offset Printing) for Swissprinters AG. We are using PSO standards (profiles, measuring values, reference values L*a*b*) every day for colour separation, hardcopy proofing, printing press online colour control and monitor proofing (softproof) in the pressroom.

Standardisation does not only mean applying the correct separation profiles in prepress work for print production. It also means understanding precisely the operating supplies and equipment, and their influences on the process. Standardisation means industrial production in an economic workflow which implies: (1) Knowhow – production factor number one is training and further training (2) Process automation (3) Process control (4) Process regulation and (5) Monitoring.

The offset printing process – even with PSO – is still a challenge and a balancing act between knowhow, economic processes, quality and time. **Why?** One of the most important factors of production are the printing properties, the printability of papers. We were forced to aquire a lot of knowhow in this specific area in the last four years.

Success proves: we are right (1) Lower waste rate – faster 'in colour'. (2) We achieve the expectations of our customers. (3) 'Tuning the ink zones' is history. (4) Stable printing process, good repeatability. (5) Reduction of cost. (6) Going easy on resources."

*„Im täglichen Leben sind wir umgeben von Standards wie zum Beispiel Masseinheiten (Liter, Meter, Kilogramm) die nicht mehr weg zu denken sind. Genau so ist das mit dem PSO (Prozess Standard Offsetdruck) für die swissprinters AG. Wir setzen die PSO-Standards (Profile, Messwerte, Referenzwerte L*a*b*) zur Separation, für den Prüfdruck bis hin zur Online-Farbsteuerung im Druck und zum Monitorproof im Drucksaal täglich ein.*

Standardisierung heisst nicht nur, in der Vorstufe die richtigen Separations-Profile für die Produktion einzusetzten. Standardisierung bedeutet auch, die Betriebsmittel und den daraus beeinflussten Prozess genau zu kennen. Standardisierung heisst industrielle Produktion in einem wirtschaftlichen Arbeitsablauf und das bedeutet: (1) Das Wissen – Produktionsfaktor Nummer eins ist Ausbildung und Weiterbildung (2) Prozesse Automatisieren (3) Prozesse Steuern (4) Prozesse Regeln (5) Überwachen.

Der Offsetdruckprozess ist – auch mit PSO – immer noch eine Herausforderung und ein Balanceakt zwischen Knowhow, Wirtschaftlichkeit, Qualität und Zeit. ***Warum?*** *Zu den wichtigsten Produktionsfaktoren gehören die Druckeigenschaften, Bedruckbarkeit der Papiere. Hier haben wir uns in den letzten vier Jahren umfassendes, spezielles Wissen aneignen müssen.*

Der Erfolg gibt uns Recht: *(1) Weniger Makulatur – schneller „in Farbe". (2) Wir erreichen die Erwartungshaltung des Kunden. (3)„Abstimmen mit Zonenschrauben" ist Geschichte. (4) Stabiler Prozess, gute Wiederholbarkeit. (5) Kosten verringern sich. (6) Umwelt- und resourcenschonende Produktion."*

Goossen Rijnders | Workflow Architect | **Wegener Media (NL)**
Chairman technical committees Dutch Newspaper Association

"Around year 2005 the publishers and printers in the Dutch Newspaper Association faced a growing resistance from ad agencies to use newpapers in their media choice.

The predictability and the repeatability over many different titles was not as expected. Although papers and inks were mostly up to the standards, everything else in the value chain frequently changed. We set out to change all the components in the value chain, being creative agencies, publishers and printers according to ISO 12647-3:2005.

Currently all newspaper publishers and newspaper printers in the Netherlands adhere to this standard. Over the years, ISO 12647-3 proved to be a reliable partner for process standardisation. Every spring the Marketing Organisation for Dutch Newspapers (Cebuco) asks all Dutch newspaper publishers to place a quarter page advertisement in their publications with both patches for measuring and images for visual judgements. All prints are collected and ranked. We have seen an improvement in the quality of print every year.

ISO12647-3 brought us a needed instrument to compete with other media (both print and non-print)."

„Rond 2005 zagen de Nederlandse drukkers en uitgers van kranten bij hun klanten een groeiende weerstand tegen het gebruik van kranten bij de mediakeuze.

De voorspelbaarheid bij het drukken was laag, wat leidde tot kleurverschillen en reproductieartefacten en daarmee tot falende communicatiedoelstellingen vanuit een adverteerdersperspectief. Weliswaar waren papier en inkt gestandaardiseerd, maar andere onderdelen in de waardeketen bleken van moment tot moment verschillend. We besloten tot het omarmen van de ISO 12647-3. Dat betekende niet alleen procesaanpassingen en bijscholing voor de drukkerijen, maar voor alle spelers in de waardeketen. Dus ook voor reclame-bureaus en uitgevers.

Op dit moment hanteren alle Nederlandse kranten-drukkerijen en -uitgeverijen de ISO-12647-3. In de afgelopen jaren in deze ISO-standaard een belangrijke hulp geweest voor gestructureerde aanpak van proces-standaardisatie en kwaliteitsverbeteringen. Ieder voorjaar wordt in alle dagbladen de KWIK-praktijktest geplaatst als een 1/4-pagina advertentie. Deze advertentie bevat elementen voor meten en voor visuele beoordeling. Alle kranten worden door een werkgroep beoordeeld. Ieder jaar zien we de kwaliteit beter worden.

ISO 12647-3 gaf ons gereedschappen en een methodiek om door kwaliteits-verbetering de concurrentie met andere medium-typen aan te gaan."

Printing condition	Profile description	Name of profile file	Characterisation data
Newspaper printing 40/cm	ISO Newspaper 26	ISOnewspaper26v4.icc	IFRA26
Tone value increase 26 %		ISOnewspaper26v4_gr.icc[1]	

Profile name, characterisation data Process Standard Newspaper Printing (ISO 12647-3). Download: www.ifra.com
(1) grey profile, mostly for internal application.

Ulrich Stetter | Schleunungdruck, Marktheidenfeld (DE)
Managing Director | Technical and Research Committee bvdm
Offset Printing Committee bvdm

"Systematic standardisation (prepress and print) is a basic requirement for both economical and ecological production. The comprehensive challenges of industrial print production demand a high continuity level of production systems and materials. The targeted selection of papers, printing inks, printing plates and the check of material properties on a regular basis is an important part of complete process control.

The step from crafts to industrial printing processes requires the use of ISO 12647 to ensure repeatability and reliability of production. The standard printing conditions – developed by practitioners on the basis of ISO 12647-2 (Process Standard Offset – PSO) – are stable coordinates in day-to-day production. We have been using these standard printing conditions for many years. They provide important foundations for our quality management and customer communication."

„Systematische Standardisierung von Vorstufe und Druck ist eine Grundvoraussetzung wirtschaftlicher und umweltfreundlicher Fertigung. Die umfangreichen Anforderungen industrieller Druckproduktion bedingen ein hohes Maß an Kontinuität bei Maschinen und Materialien. Die gezielte Auswahl von Papieren, Druckfarben, Druckplatten und die regelmäßige Überwachung der Materialeigenschaften ist ein wichtiger Baustein der gesamten Prozesskontrolle.

Der Schritt von der handwerklichen Druckerei hin zur industriellen Druckproduktion bedingt zwangsläufig den Einsatz der ISO 12647, um so die Wiederholgenauigkeit und die Zuverlässigkeit in der Produktion sicherzustellen. Die von Praktikern entwickelten Standard-Druckbedingungen auf der Basis von ISO 12647-2 (ProzessStandard Offsetdruck – PSO) sind zuverlässige Koordinaten im Produktionsalltag, die wir seit Jahren nutzen. Sie stellen wichtige Grundlagen für unsere Qualitätssicherung und Kundenkommunikation bereit."

Printing condition, paper type (PT) Tone value sum (TVS)	Profile description	Name of profile file	Characterisation data
Offset** PT 1/2, TVS 330 %	ISO Coated v2 (ECI)	ISOcoated_v2_eci.icc	FOGRA39
Offset** PT 1/2, TVS 300 %	ISO Coated v2 300 (ECI)	ISOcoated_v2_300_eci.icc	FOGRA39
Offset** PT 3, TVS 300 %	PSO LWC Improved (ECI)	PSO_LWC_Improved_eci.icc	FOGRA45
Offset** PT 3, TVS 300 %	PSO LWC Standard (ECI)	PSO_LWC_Standard_eci.icc	FOGRA46
Offset** PT 4, TVS 320 %	PSO Uncoated ISO12647 (ECI)	PSO_Uncoated_ISO12647_eci.icc	FOGRA47
Offset** PT 5, TVS 320 %	ISO Uncoated Yellowish	ISOuncoatedyellowish.icc	FOGRA30
Offset PT 1/2 (non-periodic screen), TVS 330 %	PSO Coated NPscreen ISO 12647 (ECI)	PSO_Coated_NPscreen_ISO12647_eci.icc	FOGRA43
Offset PT 1/2 (non-periodic screen), TVS 300 %	PSO Coated 300 NPscreen ISO 12647 (ECI)	PSO_Coated_300_NPscreen_ISO12647_eci.icc	FOGRA43
Offset PT 4 (non-periodic screen), TVS 300 %	PSO Uncoated NPscreen ISO 12647 (ECI)	PSO_Uncoated_NPscreen_ISO12647_eci.icc	FOGRA44

Profile names, characterisation data Process Standard Offset Printing (ISO 12647-2). Note: Profile and characterisation data FOGRA30 is based on reference print (2004) of Altona Test Suite Application Kit. FOGRA39 to FOGRA47 are based on various test print series. Characterisation data (download: www.fogra.org) and profiles (download: www.eci.org) latest version released in 2009. ** A bandwidth of screen rulings (e. g. 54/cm to 80/cm) is applicable in combination with particular characteristic printing curves A to F, ISO 12647-2. For example, paper type 2: curve A (CMY) and curve B (K) for the screen ruling range 60/cm to 80/cm. FOGRA43 and FOGRA44 apply for non-periodic screening, developed in a research project/test print series of bvdm/Fogra (2008). Tone value sum (TVS): maximum value.

Frédéric Jahn | joint MD of **SEGO Group** and Director of **SIRA** printing plant (heat-set web offset, sheet-fed offset and digital printing) **(FR)**

"Since 1995, our printing plants have been working on implementing quality assurance practices in our processes, to which ISO 12647 was a natural and complementary addition. Our objective was to standardise our prepress, offset and digital printing activities with a project that all operators can adhere and contribute to. The results of ISO 12647 implementation in our group have exceeded our expectations, as each activity has individually and collectively gained from the adopted standardisation works:

Premedia and Prepress:
200,000 pages are produced yearly in our premedia and prepress studios, with 90% of the pages sent to print providers outside our group. Our entire file and proof production is done in conformance with ISO 12647 and ISO 15930 standards requirements, with no customer claim since years now.

Digital Printing:
Standardisation of our digital printing activity has allowed this technology to become an integral part or our industrial process and business as we are able, thanks to ISO 12647-2 conformance, to produce consistent and reproducible colour across printing processes and technologies. Our customer satisfaction increased significantly since.

Offset Printing:
Standardisation in our offset printing processes has given us a new edge: problem detection and preventive correction have allowed us to anticipate and eliminate most of them. Responsibilities in the production chain are clearly established, operators are more confident and relaxed. And, thanks to the continuous improvement of our standardisation software, instruments and practices, our print quality and ability to match standards on the press continues to improve day by day."

Frédéric Jahn | Directeur Général Adjoint Groupe SEGO
et directeur du site SIRA Imprimeur (rotative, feuille et numérique) (FR)

»La mise en place dans nos entreprises de la standardisation iso 12647, s'inscrivait dans la suite logique des travaux menés depuis 1995 avec nos syndicats professionnels. Notre objectif était de standardiser nos activités de prépresse, d'impression numérique et d'offset. Nous voulions que ce soit un véritable projet d'entreprise porté par les salariés. Et le résultat, qui a dépassé nos attentes, est déjà un bénéfice considérable pour l'entreprise. Chacune de nos activités en a beaucoup profité:

Prépresse:
200.000 pages sont produites chaque année dans nos ateliers de prépresse et près de 90% des pages sont envoyées dans des imprimeries autres que les nôtres. Toute notre productions s'appuie sur la standardisation et cela fait des années que nous n'avons plus eu le moindre litige.

Impression numérique:
Standardiser l'impression numérique a permis de l'inscrire définitivement dans notre activité industrielle puisque nous offrons à nos clients un rendu cohérent et indépendant du procédé d'impression. La satisfaction des clients a très nettement progressé.

Impression offset:
Pour l'activité offset, nous avons le sentiment d'avoir franchi un cap: les éventuels problèmes sont mieux anticipés, les responsabilités étant clairement définies, le personnel est plus serein et grâce à l'évolution des logiciels et des appareils de mesure, nous améliorons jour après jour notre qualité d'impression.«