SAFETY DATA SHEET
HEATSET GOLDS

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

PRODUCT NAME
HEATSET GOLDS

PRODUCT NO.
790 201 TO 790 206

APPLICATION
PRINTING INK

SUPPLIER
STEHLIN HOSTAG INK UK LTD
UNIT D4 LINKMEL CLOSE
QUEENS DRIVE INDUSTRIAL ESTATE
NOTTINGHAM
NG2 1NA
Tel: 0115 9860477
(0115 986 0477 Mon- Fri 24 hrs)
Fax: 0115 9862681
e-mail: sds@stehlin.co.uk

2 HAZARDS IDENTIFICATION

Not regarded as a health or environmental hazard under current legislation.

3 COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Name</th>
<th>EC No.</th>
<th>CAS-No.</th>
<th>Content</th>
<th>Classification (67/548)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), acid-treated middle</td>
<td>265-113-1</td>
<td>64742-13-8</td>
<td>&lt;30%</td>
<td>Xn;R65. R66,R53.</td>
</tr>
<tr>
<td>Gold Bronze Pigment</td>
<td></td>
<td></td>
<td>50-60%</td>
<td>-</td>
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</tbody>
</table>

The Full Text for all R-Phrases are Displayed in Section 16

4 FIRST-AID MEASURES

INHALATION
Supply fresh air; consult doctor in case of complaints

INGESTION
If symptoms persist, seek medical advice.

SKIN CONTACT
Wash immediately with plenty of water and soap and rinse thoroughly.

EYE CONTACT
Rinse opened eye for several mintues under running water

5 FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA
Co2, sand, extinguishing powder. Do not use water. Use fire extinguising methods suitable to surrounding conditions. For safety reasons unsuitable extinguishing media: Water

PROTECTIVE MEASURES IN FIRE
Do not inhale explosion gases or combustion gases

6 ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS
Wear protective clothing as described in Section 8 of this safety data sheet. Remove people from danger area. Keep unprotected people away

ENVIRONMENTAL PRECAUTIONS
Do not discharge into drains, water courses or onto the ground.
HEATSET GOLDS

SPILL CLEAN UP METHODS
Absorb with liquid binding material such as sand, vermiculite, sawdust etc. Ensure good ventilation Do not flush with water or aqueous cleansing agens

7 HANDLING AND STORAGE

STORAGE PRECAUTIONS
Store in tightly closed original container in a dry, cool and well-ventilated place.

8 EXPOSURE CONTROLSPERSONAL PROTECTION

RESPIRATORY EQUIPMENT
In case of inadequate ventilation use suitable respirator.
HAND PROTECTION
Solvent resistant gloves recommended. Preventative skin protection by use of skin protecting agents is recommended. Prior contacts with water insoluble substance / product / preparation apply water soluble skin protecting agent (fat-free film former or O/W emulsions). The selection of suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application. The exact breakthrough time has to be found out by the manufacturer of the protective gloves and has to be observed.
EYE PROTECTION
Wear approved safety goggles.
HYGIENE MEASURES
Wash at the end of each work shift and before eating, smoking and using the toilet.
SKIN PROTECTION
Protective clothing should be worn.

9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE Fluid
COLOUR Gold coloured
ODOUR Characteristic
SOLUBILITY Insoluble in water
BOILING POINT (°C) 240 degrees C
VISCOSITY 25-30 Pas
AUTO IGNITION 240 degrees C
TEMPERATURE (°C)

10 STABILITY AND REACTIVITY

STABILITY
Stable under normal temperature conditions and recommended use.
MATERIALS TO AVOID
Strong oxidising substances.

11 TOXICOLOGICAL INFORMATION

TOXIC DOSE 1 - LD 50 >2000 mg/kg (oral rat)
TOXIC DOSE 2 - LD 50 >2000 dermal (rab)

GENERAL INFORMATION
The product is not subject top classification according to the calculation method of the General EU Classification Guidelines for Preparations in the latest version.
SKIN CONTACT
No irritating effect Not a skin sensitiser.
EYE CONTACT
No irritating effect

12 ECOLOGICAL INFORMATION

WATER HAZARD CLASSIFICATION
Water hazard class 1 (German Regulation) (Self Assessment): Slightly hazardous for water. Do not allow product to reach ground water, water course or sewage system. Harmful to aquatic organisms.
HEATSET GOLDS

13 DISPOSAL CONSIDERATIONS

GENERAL INFORMATION
The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

DISPOSAL METHODS
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

WASTE CLASS
08 03 12 waste ink containing hazardous substances

14 TRANSPORT INFORMATION

GENERAL
Not dangerous according to the above specification

15 REGULATORY INFORMATION

EU DIRECTIVES
Observe the gernal safety regulations when handling chemicals. The product is not subject to regulations under EU Directives and the Ordinance on Hazardous Materials (German GefStoffV)

16 OTHER INFORMATION

REVISION COMMENTS
This is first issue.

ISSUED BY
B.A Hayden HSQE Manager

REVISION DATE
07/10/10

REV. NO./REPL. SDS GENERATED
1

SDS NO.
10797

SAFETY DATA SHEET STATUS
Approved.

DATE
07/10/10

RISK PHRASES IN FULL
R53 May cause long-term adverse effects in the aquatic environment.
R65 Harmful: may cause lung damage if swallowed.
R66 Repeated exposure may cause skin dryness or cracking.

DISCLAIMER
This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.
Gold inks
for web offset heatset printing

Application
Metallic-effect printing inks open up great possibilities for the design of printwork in web offset heatset, too. Gold has always been the epitome of beauty and luxury, so it is only understandable that civilised man has forever been trying to imitate these effects.

Gold effects are created using pigments based on brass (= a copper-zinc alloy). Misleadingly, reference is often made to bronze shades, which would have to contain an alloy of copper and tin. The different shades are an expression of the various proportions of the constituents in the alloy. The standard shades available are:

- Pantone Gold 871 790 201
- Pantone Gold 872 790 202
- Pantone Gold 873 790 203
- Pantone Gold 874 790 204
- Pantone Gold 875 790 205
- Pantone Gold 876 790 206

Converting
The best metallic effect is achieved on coated substrates that have a uniform, smooth surface. In view of the highly pigmented and extremely opaque systems, it is neither recommendable nor necessary to try to enhance the effect through excessive inking. As a rule, this only leads to printing problems such as piling, inadequate smudge resistance, increased emulsification and ink flying. It has proven to be best when the gold ink is not printed from the final inking unit, especially when printing solids. Smoothing the print by means of an additional rubber blanket does bring advantages as regards producing an uninterrupted coating.

Metallic pigments that contain copper are particularly susceptible to corrosion. And this fact must be taken into consideration on press. For this reason, the pH of the fountain solution should be no lower than 5.5. In addition, the amount of fountain solution applied should be kept to a minimum in order – especially when ink consumption is low – to avoid over-emulsification and poor ink coating that goes hand in hand with this.

Surface finishing
When conducting subsequent surface-finishing procedures, such as UV varnishing or film laminating, on dried metal-pigmented heatset inks, problems are repeatedly experienced as regards adhesion. The cause of these problems are stabilisers and lubricants added during the production process, which adhere to the surface of the metallic pigments. The amount of these additives on the dried ink surface fluctuates depending on the pigment concentration, the absorbency of the substrate and the quantity of ink applied. Consequently, we recommend that you examine the varnish-acceptance and adhesion characteristics between the ink film and the surface finish thoroughly in the run-up to the print job.

Shelf life
The metallic gloss of the inks gradually decreases over time due to oxidation of the metallic particles. A shelf life of 6 months should not be exceeded.

Classification
Code per German law on hazardous substances (GefStoffV): None

How supplied 10 -kg plastic bucket

Instructions for printing food packaging
This sheetfed process series is not suitable for printing of food packaging where the substrate is in direct contact with the food and/or there are insufficient barrier properties. In this case we recommend our specially formulated low migration MGA ® to be used. More information regarding packaging for food and beverage is available on the leaflet “printing inks for food packaging”, published by the Association of Ink Manufacturers or our “information on using standard sheet-fed offset printing inks for the manufacture of food packaging” and our website www.futurepack.de.