

EFIBCA is the voice of the European FIBC industry.

In this issue:

**ANNOUNCEMENT**

- 4<sup>th</sup> EFIBCA Open Meeting 2013

**LEGISLATION, STANDARDS & TECHNOLOGY**

- Questions and Answers regarding the Proper Use of FIBC

**FIBC MARKET NEWS**

- FIBC Import Statistics 2012 (1<sup>st</sup> Half Year)
- Boxon GmbH and Jumbotainer Verpackungs GmbH join forces in Germany

**INTERNAL NEWS**

- New EFIBCA members

**SPECIAL THEME**

- Integration of RFID-transponders into FIBC

**UPCOMING EVENTS**

- FIBC Calendar

**ANNOUNCEMENT**

**4<sup>th</sup> EFIBCA Open Meeting 2013**

EFIBCA is proud to announce its fourth Open Meeting on 12 February 2013 at Hyatt Regency in New Delhi, India.

The EFIBCA Open Meeting is the perfect platform for exchange and networking across the FIBC industry. Eight expert speakers will bring you up to date on a broad variety of business aspects, ranging from the raw material market to end-of-life solutions of FIBC. Registration and the full conference programme will soon be available on [www.efibca.com](http://www.efibca.com).

**LEGISLATION, STANDARDS & TECHNOLOGY**

**Questions and Answers regarding the Proper Use of FIBC**

The inappropriate use and storage of FIBC may not only lead to damage of the packed product but also to severe working accidents and environmental damage. Users of FIBC must therefore take reasonable precautions when selecting, filling, storing, transporting and discharging FIBC.

In order to inform users of FIBC about the basic principles regarding the proper use of FIBC, EFIBCA has now published Q&As on its website [www.efibca.com](http://www.efibca.com). For more information please contact [a.schaefer@kunststoffverpackungen.de](mailto:a.schaefer@kunststoffverpackungen.de).

**MARKET NEWS**

**FIBC Import Statistics 2012 (1<sup>st</sup> Half Year)**

Compared to the first half year in 2011, the value of FIBC imports to the EU decreased by 8% to a total of 158.8 million Euro in the first half year of 2012 (see table 1).

**Table 1** Total Import of FIBC<sup>1</sup> to the EU27 (value)

	1 <sup>st</sup> HY 2012	1 <sup>st</sup> HY 2011	difference
	M €	m €	
Imports to the EU27	158.8	172.2	- 8%

Source: EFIBCA 2012 (based on Eurostat)

The decrease of exports to the EU affected the absolute production figures in the top 3 exporting countries. Nevertheless, Turkey consolidated its leadership as FIBC exporter to the EU with a slight increase of market share to now approx. 41% (see table 2). India remained in second place with stable export figures, followed by China. These three main exporting countries together as-

sume approx. 85% of the total import value to the EU27 zone. Remarkably, Bangladesh and Serbia were able to increase the value of imported FIBC to the EU despite of the general drop.

**Table 2** Top 6 Exporting Countries of FIBC to the EU27 (by value)

1.HY 2012 Rank	Country	1.HY 2012		1 HY 2011	
		m €	Import Share	m €	Import Share
1 →	Turkey	66.0	41.6%	70.5	40.7%
2 →	India	55.4	34.9%	58.9	34.2%
3 →	China	15.2	9.6%	16.2	9.3%
4 →	Bangladesh	8.5	5.4%	7.3	4.2%
5 →	Serbia	4.5	2.8%	3.4	2.0%
6 →	Thailand	2.8	1.8%	3.1	1.8%

Source: EFIBCA 2012 (based on Eurostat)

- no change in rank compared to the previous year
- ↗ up in rank compared to the previous year
- ↘ down in rank compared to the previous year

For more details please contact [a.schaefer@efibca.com](mailto:a.schaefer@efibca.com).

#### MARKET NEWS

### Boxon GmbH and Jumbotainer Verpackungs GmbH join forces in Germany

Boxon and Jumbotainer are now joining forces by Boxon Group acquiring Jumbotainer in Syke, Germany. The Company will put focus on high level of services and independence for its customers. Jumbotainer will become a corner stone in the Boxon Bulk division, focusing on the German market. [a.schaefer@efibca.com](mailto:a.schaefer@efibca.com)

#### INTERNAL NEWS

### New EFIBCA members

EFIBCA warmly welcomes Christoph Burckard AG, machine manufacturer in Basel, Switzerland, as new associated member.

#### SPECIAL THEME

### Integration of RFID-transponders into FIBC

by Matthias Grzib, Institute for Distribution and Trade Logistics (IDH), Dortmund (Germany)

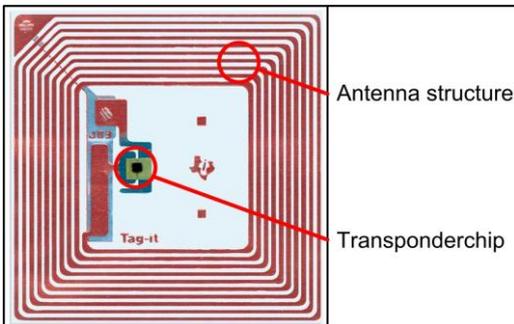
In the past few years, tagging objects with RFID-transponders (RFID = radio frequency identification) made many different benefits available. Using RFID technology allows for e.g. accelerated processes for incoming and outgoing goods and the necessary updates of the warehouse management system. Permanent stock keeping and a fully automated and continuous tracking and tracing are further benefits. Especially the advantages of the radio based communication compared to the normally used optically based marking systems e.g. 1D-Barcodes, 2D-Matrixcodes, OCR or pictograms are one reason for this new technology's success. Optical marking and identification systems have some systemic drawbacks. These are for instance:

- Dependency on a direct line of sight
- dirty, damaged or faded markings – e.g. caused by typical stresses during transport, handling or warehousing (THW) – can lead to identification difficulties and errors
- Markings covered by other packages caused by stacking, cannot be identified
- Markings on flexible packaging can get deformed, thus making it extremely hard or even impossible to identify

The RFID technology on the other hand does not need a clear line of sight to the transponder to get the information stored on it. The radio signals can penetrate most material except for metal and other conducting substances. This allows for the simultaneous identification of several objects that are for instance stacked on a pallet without having them separated. The penetrative abilities also make it possible to better protect transponders against mechanical, climatic or chemical stresses by encasing them in durable plastic. Despite these advantages, the RFID technology is only used to a rather limited extend in flexible packaging like FIBC, because it is more expensive than optical markings technologies.

Currently RFID is mainly integrated into solid objects and packaging e.g. cardboard or plastics boxes. One reason for this is, that due to the properties of solid packaging respectively packaging material the transponders can be protected more easily against the above mentioned stresses.

The integration of RFID tags into flexible packaging has not been realized yet as flexible materials pose a challenge for RFID integration and require the implementation of special protective measures. The standard RFID (inlay) transponder is sensitive to bending stresses at the area where RFID chip and the transponders antenna structure are bonded together. These bending stresses can be caused by coarse pellets or granulates – e.g. wooden logs or coal briquettes – that form through the flexible packaging and can render a RFID tag useless.



**Figure 1:** Typical RFID transponder (13,56 MHz)

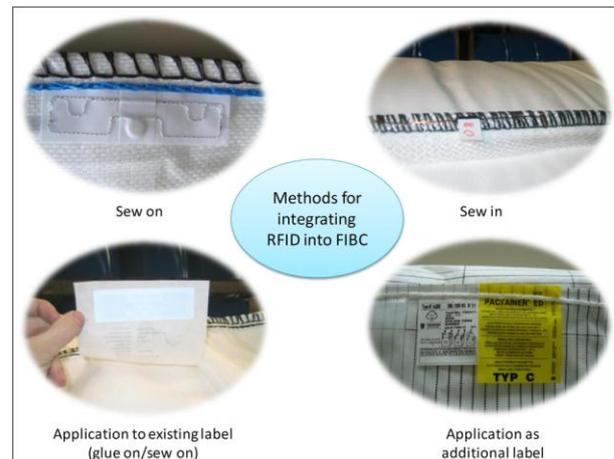
Figure 1 shows the typical components a RFID transponder consists of (in this case a HF-transponder operating at a frequency of 13,56 MHz).

To still benefit from the afore mentioned advantages of the RFID technology in the flexible packaging industry the Institute for Distribution and Trade Logistics (IDH) in Dortmund (Germany) carried out the research and development project “Integration of the RFID technology into flexible packaging taking into account the resistance against typical transport, handling and warehousing stresses”. After two years of an excellent cooperation with companies from the packaging and RFID industries as well as future users of the researched topics from the chemical industry this project has been successfully finished in July. This R&D project (IGF-No. 16830 N/1) was funded via the German Federation of Industrial Research Associations (AiF) as part of the “Program

for Industrial Collective Research (IGF)“ by the German Federal Ministry of Economics and Technology according to an official decision of the German Bundestag. The results of this project show that despite these – at first glance – rather obstructive properties of flexible packaging a reliable integration of the RFID technology is feasible.

#### *How to fix RFID on a FIBC*

With the aim to find efficient and economically reasonable methods for integrating RFID transponders into FIBC the used materials and manufacturing processes were analyzed. The fact, that FIBC are normally produced by hand simplifies implementing the integration process into existing production lines – without the need of changing them significantly. Methods that were identified as being well suited is sewing the tags in or on as well as applying them to already attached labels (by sewing or gluing).



**Figure 2:** Methods for integrating RFID into FIBC

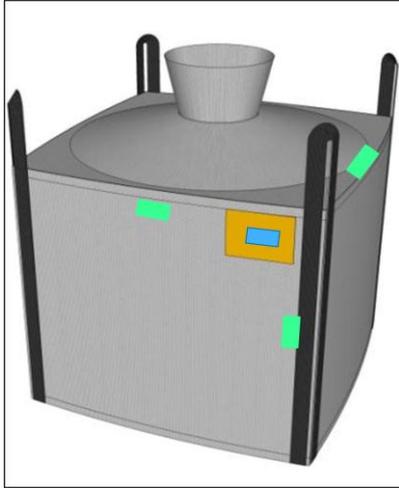
Figure 2 shows some examples of integrated RFID transponders. Of course attaching the transponder to an already existing label is the easiest way, as long as it is assured that the label stay with the FIBC permanently and does not get detached by typical THW-stresses.

Alternatively the transponders can be sewed directly into or onto the seam of a FIBC, thereby reducing the danger of losing the transponder significantly. Using this method requires the attention to either prevent arising stretching forces to reach the transponder or to ensure that the transponder survive these stresses due to its rugged design. This can be done by e.g. encasing the sensi-

tive parts in plastics. The THW processes prior to the actual use of a FIBC are also a challenge for RFID transponders. It is a widely used practice to press Big Bags to bales for transportation on pallets. If the transponder is located at a position that gets strongly bend or pressed together it can get damaged beyond functioning. Still there will be areas or seams on the FIBC that will stay in a straight line.

This is where a transponder should be applied.

The exact point where the transponder is going to be attached to a Big Bag has to be chosen on a case-by-case basis.



**Figure 3:** Possible positions for a RFID transponder on a FIBC

Figure 3 shows possible positions on a FIBC that have been determined during the tests of the R&D project at which the stresses to an attached RFID transponder will be relatively low.

*Does it necessarily have to be RFID?*

Of course the question arises – especially due to the expected increase in costs and the already cost-sensitive FIBC market – if it is really necessary or reasonable to use RFID for the marking of FIBC instead of further using the already existing optical methods.

When implementing RFID into products or processes it is important to not only have a look at the pure costs. The most important fact of RFID is the added value it can generate if it is used properly.

Also the added value increases more the earlier RFID is introduced to the logistic processes, making the integration during manufacturing of the FIBC the most reasonable. Fig. 2. shows some of the benefits that can be realized by the integration of RFID in FIBC for different user groups. FIBC manufacturers can use RFID to automatically control outgoing goods. Thanks to the bulk-reading capacity – and providing a clever positioning – all Big Bags on one pallet can be identified simultaneously reducing time for checks and also reducing errors in commissioning.

Function Area	User	RFID Process	Business Benefit
Inventory Management	FIBC manufacturer Chemical and foods industry	Accurate real-time inventory updates	Higher inventory velocity / reduced safety stocks
		Accelerated incoming and outgoing goods checks	
Plant and warehouses	Chemical and foods industry	Automatization of tracking the flow of goods	Reliable tracking and tracing
Security/Quality	Chemical and foods industry	Prevention of mixing wrong ingredients by identification directly prior to mixing	Improved quality Reduced error quote
		Lot and batch tracking	Improved product recall capabilities

**Figure 2:** Benefits of RFID in FIBC

Thanks to the fully automatic identification in – for optical marking systems – difficult environments (e.g. involving large amounts of dust and/or dirt) new ways of monitoring processes can be designed. The mixing of ingredients can be supervised on-the-fly and the mixing process can be stopped, if a wrong ingredient is identified, preventing high costs or even damages to machinery. RFID can also simplify the implementation of ePedigree processes (= electronic documentation of data and history of a particular batch or product) and ensure an effective tracking and tracing by automatic identifications along the supply chain as it is demanded by the European Regulation (EG) No. 178/2002.

These are only some of the possible ways RFID can improve logistic processes when implemented into FIBC. Combining RFID with integrated sensors can increase the added value even more. As soon as these benefits have been sufficiently communicated to the users of FIBC it will be easy for FIBC manufacturers to sell “smart” FIBC that cost one or two Euros more than their normal counterparts.

#### About the Author

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## UPCOMING EVENTS

### FIBC Calendar

#### **EFIBCA-Council Meeting**

13 November 2012, London, UK  
[www.efibca.com](http://www.efibca.com)

#### **EFIBCA AGM**

14 November 2012, UK  
[www.efibca.com](http://www.efibca.com)

#### **EFIBCA Open Meeting**

12. Feb 2013, Delhi, India  
[www.efibca.com](http://www.efibca.com)

#### **Arabplast**

07-10 January 2013, Dubai, UAE  
[www.arabplast.com](http://www.arabplast.com)

#### **Interplastica**

29. Jan – 01. Feb 2013, Moskow, Russia  
[www.interplastica.de](http://www.interplastica.de)

#### **Plastimagen**

12. – 15. Mar 2013, Mexico City, Mexico  
[www.plastimagen.com.mx](http://www.plastimagen.com.mx)

#### **Brasilplast**

06. -10. May 2013, Sao Paulo, Brasil  
[www.anhembicom.br](http://www.anhembicom.br)

#### **Chinaplas**

20.-23. May 2013, Guangzhou, China  
[www.chinaplasonline.com](http://www.chinaplasonline.com)

*Orange: EFIBCA meetings*

*Lilac: external conferences*

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