



# Short Term Scientific Mission in the frame of COST Action E48

Study of Paper Bale Sensor and  
paper stream control

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# Topics of the presentation



- Background of STSM
- Main objective of STSM
- Quality control of recovered paper at Hungarian paper mills
- Comparison of PBS and *emco* AP 500
- Conclusion

# Background



- In Hungary the recovered paper utilization  $> 70\%$
- Quality control is outworn and should be updated
- paper collection has to be increased (EU obligation)
- In 2009 start up of new PM – RP demand 400 000 t/y



PBS can recognize and characterize the content of the bales – could be used in Hungary

# Main objective of STSM



- To get acquainted with two new portable measuring systems:
  - paper bale sensor (PBS)
  - paper stream control (PSC)
- To observe the PBS and the PSC device in practice and to use these tools for trial measurements

# Quality control of recovered paper at Hungarian paper mills I



What kind of paper is supplied

– Inland collected:

- Old corrugated containers (OCC)
- Mixed waste paper

– Outland collected:

- Kraft paper

# Quality control of recovered paper at Hungarian paper mills II



## Categories of suppliers

- „A” with ISO qualification - no control
- „B” - the first supply is controlled
- „C” - all supply has to be controlled

# Quality control of recovered paper III.



- Check the loading bill (category of supplier)
- Measuring the moisture content with *emco* **AP 500**
- 10 measurement results are averaged
- Visual evaluation of unusable materials content
- The empty truck is weighted
- If the moisture content  $>20\%$  - price correction or rejection

# Comparison of PBS and *emco* AP 500 I



The **PBS** device



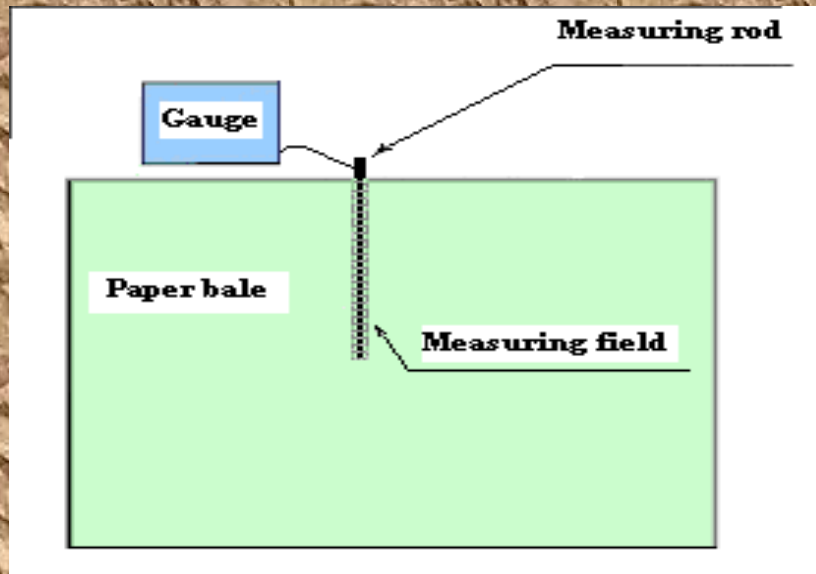
The *emco* AP 500

# Comparison of PBS and *emco* AP 500 II.

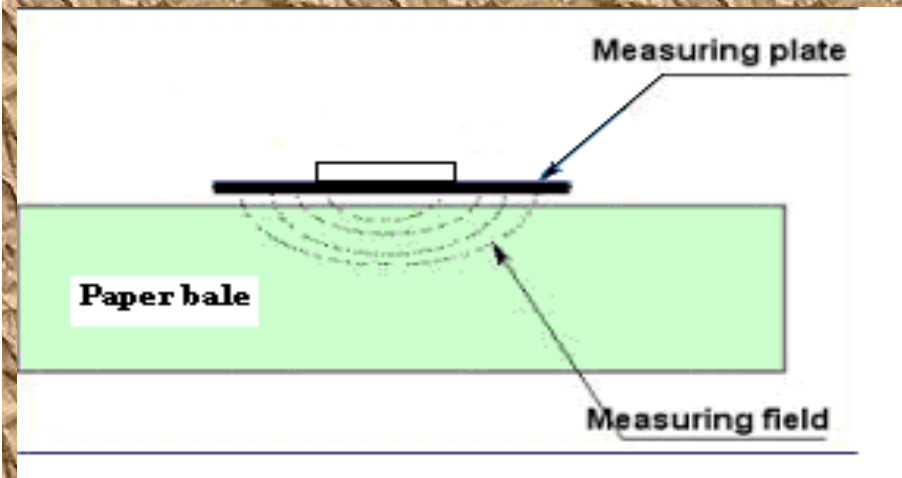


	PBS	<i>emco</i> AP 500
<b>portability</b>	α	α
<b>dimension</b>	175x250x260 mm+1200mm	620 x100 x150 mm
<b>Weight</b>	5kg	940g
<b>What is measured</b>	Water, plastics, ash, fiber content	Water content
<b>Results summary</b>	α	x

# Comparison of PBS and *emco* AP 500 IV.



The PBS method



The *emco* AP 500 method

# Comparison of PBS and *emco* AP 500 II



	<b>PBS</b>	<i>emco</i> AP 500
<b>Principle</b>	NIR	dielectric
<b>Measuring place</b>	Anywhere in bale	Free area of bale surface
<b>Measuring depth</b>	1200 mm	300mm
<b>confidence level</b>	90%	30-50%
<b>+needs</b>	Spiral drilling machine	Human observations

# Conclusions



- The study trip have raised my interest in the importance of RP quality control
- Since then I have faced some problems in Hungarian routine which we do not lay enough stress on
- I would like to promote the use of new quality control techniques whit articles and presentations



Thank you for attention!

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