GOUBANNE® SYSTEM ROUTINE INTEREST AS PROOF OF STEAM PENETRATION

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INTRODUCTION

Colorimetric system= BD sheet→ steam penetration at the heart of a porous load.
PCD test with colorimetric indicator =Helix®→ steam penetration into narrow and hollow lumen instruments→ better reflects characteristics of our loads.

AIM

Demonstrate that on a steam penetration test cycle, the "Goubanne® and sensor (temperature and pressure)" system is more reliable than these indicators to assess saturated steam penetration efficiency and lack of non-condensable gases.

MATERIALS/METHOD

Unit sensors= M

Qualification company Sensors= X

Compliant situation

Non-compliant situations

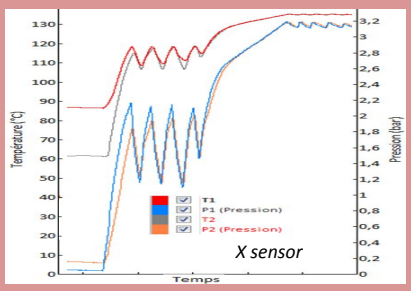
Goubanne® watertight and calibration sensor was done and check.
Measure of equilibration time→Lack of non condasable gases.
Regnault's difference in sterilization tray and water residual volume →steam saturation in Goubanne®.
Non-compliant situations : air leakage, air leakage + supplementary constraint (Goubanne® in container) , cycle stopping during the tray.

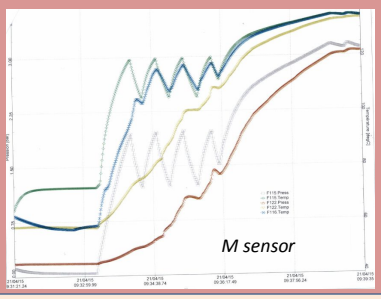
RESULTS

Over 30 tests were performed.

Equilibration time compliant for X sensors , but not for M sensors (11/34 compliant).
Regnault's difference is still compliant.
Residual water= 1,12ml on average; it is more important with M sensors (Mollier's diagram)
Cycles profiles of M and X sensors were different.

Cycles profiles of M and X sensors for the same cycle.





Non-compliant situations:

Non-compliant situations	Non- conformity detection							
	Colorimetric indicator in traditionnal use		Colorimetric indicator in "Goubanne®" in container		Colorimetric indicator in traditionnal use in container		M sensor	X sensor
	Sheet	Helix	Sheet	Helix	Sheet	Helix		
Air leakage (3 paper thickness) + supplementary constaint	0/8	8/8	4/8	8/8	0/8	5/8	8/8	8/8

Non-compliant situations	Non- conformity detection			
	Colorimetric indicator		M sensor	X sensor
	Sheet	Helix		
Air leakage 1: 2 paper thickness	1/2	2/2	1/2	0/2
Air leakage 3: 4 paper thickness	2/2	2/2	2/2	2/2
Cycle stopping during the tray	0/4	0/4		

DISCUSSION

"Goubanne® and sensor (temperature and pressure)" system is as well as colorimetrics tests to prove steam penetration at the heart of a load
- Steam penetration in the Goubanne®, lack of non condasable gases.
- Satureted steam

Sensor morphological character influence results (density, sensors location, presence of silicone, positioning).

Does "Goubanne® and sensor (temperature and pressure)" system is better than colorimetric tests?
→ Better detection up to a certain limit.
→ Not enough constraint with current Goubanne®.
→ We don't have to place colorimetric indicators in the Goubanne®: they never detect defects.
→ Color of colorimetric indicators still change whatever exposure time: this time seems not to influence the colorimetric results.

Both colorimetric indicators don't have the same detectability: a new study is in progress.

CONCLUSION

Unlike class two indicators, "Goubanne® and sensor" system allows to appreciate steam quality and exposition time. So, it could be daily used as a proof of steam penetration under conditions (sensor calibration, type of sensor selected, "Goubanne®" watertight and hole diameter? Material? Solidity? Resistance time?).