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H-BIN BIOTRANSPORT

**SOLUTIONS FOR THE SAFE HANDLING
OF BIOLOGICAL SAMPLES**



Making sample transportation safer and easier

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Introduction

In response to the needs of Italian healthcare professionals and thanks to more than **20 years of experience in the healthcare industry**, M.&G. INT'L developed the **H-BIN BIOTRANSPORT** product line: **a complete solution for the safe handling and transport of biological samples.**

We make sure that **samples reach their destination securely and in the right conditions for testing**, thus not only **improving the quality and efficiency of healthcare procedures**, but also **benefiting patients and healthcare workers.** Our products are **manufactured in Italy with high quality materials**, are **easy to use** and **in compliance with Italian laws and international standards.**

The H-BIN BIOTRANSPORT product line is composed of:

❖ SECONDARY CONTAINERS

- ✓ Airtight, ADR-compliant secondary containers
- ✓ Leakproof security bags made of recycled polyethylene
- ✓ Containers for +4°C and +37°C transport of syringes and tubes
- ✓ Supports for test tubes and urine collection cups

❖ TERTIARY CONTAINERS

- ✓ Isothermal bags for long-distance transport
- ✓ Isothermal bags for short-distance transport

❖ TEMPERATURE TRACKING SOLUTIONS


- ✓ NFC temperature tracking system
- ✓ Bluetooth temperature tracking system

BIO 01P, 02S, 03M, 04L:

Airtight secondary containers

Made of polycarbonate



 Specifications			
	DIMENSIONS (EXT)	WEIGHT	CAPACITY
BIO 01P	242x169x155 mm	720 g	60 tubes \varnothing 13mm/ 40 tubes \varnothing 16 mm
BIO 02S	305x245x155 mm	1.1 kg	120 tubes \varnothing 13mm/ 80 tubes \varnothing 16 mm
BIO 03M	390x230x173mm	1.5 kg	180 tubes \varnothing 13mm/ 120 tubes \varnothing 16 mm
BIO 04L	500x285x225 mm	2.7 Kg	300 tubes \varnothing 13mm/ 200 tubes \varnothing 16 mm

Compliance

- ✓ **Directive 2000/54/EC of the European Parliament** on the protection of workers from risks related to exposure to biological agents at work
- ✓ **UNI EN 829/98** (falling trial)
- ✓ **A.D.R.** (European Agreement concerning the International Carriage of Dangerous Goods by Road) – **Packing Instruction P650**
- ✓ Registered as **IVD Medical Devices (CE Marking)**

Features

- ✓ Made of **fall-proof, heavy-duty polycarbonate**
- ✓ Polycarbonate **tray for documents**
- ✓ Airtight silicone seal
- ✓ **Highly absorbent tissue** made of non-woven fabric
- ✓ **Instructions of use and symbols** printed on the sides
- ✓ Stainless steel **safety hooks**

Benefits

- ✓ **Autoclavable at max 121°C**
- ✓ **Transparent to easily spot any accidental spills**
- ✓ **Modular accessories available**
- ✓ **Customization available** upon request
- ✓ **All components are latex free**




BIO 01P-E, 02S-E, 03M-E, 04L-E:

Airtight secondary containers

Made of polypropylene



 Specifications			
	DIMENSIONS (EXT)	WEIGHT	CAPACITY
BIO 01P-E	242x169x155 mm	565 g	60 tubes \varnothing 13mm/ 40 tubes \varnothing 16 mm
BIO 02S-E	305x245x155 mm	900 g	120 tubes \varnothing 13mm/ 80 tubes \varnothing 16 mm
BIO 03M-E	390x230x173mm	1.2 kg	180 tubes \varnothing 13mm/ 120 tubes \varnothing 16 mm
BIO 04L-E	500x285x225 mm	2.1 Kg	300 tubes \varnothing 13mm/ 200 tubes \varnothing 16 mm

Compliance

- ✓ **Directive 2000/54/EC of the European Parliament** on the protection of workers from risks related to exposure to biological agents at work
- ✓ **A.D.R.** (European Agreement concerning the International Carriage of Dangerous Goods by Road) – **Packaging Instruction P650**
- ✓ Registered as **IVD Medical Devices (CE Marking)**
- ✓ **UN 3373 Marking required by law**

Features

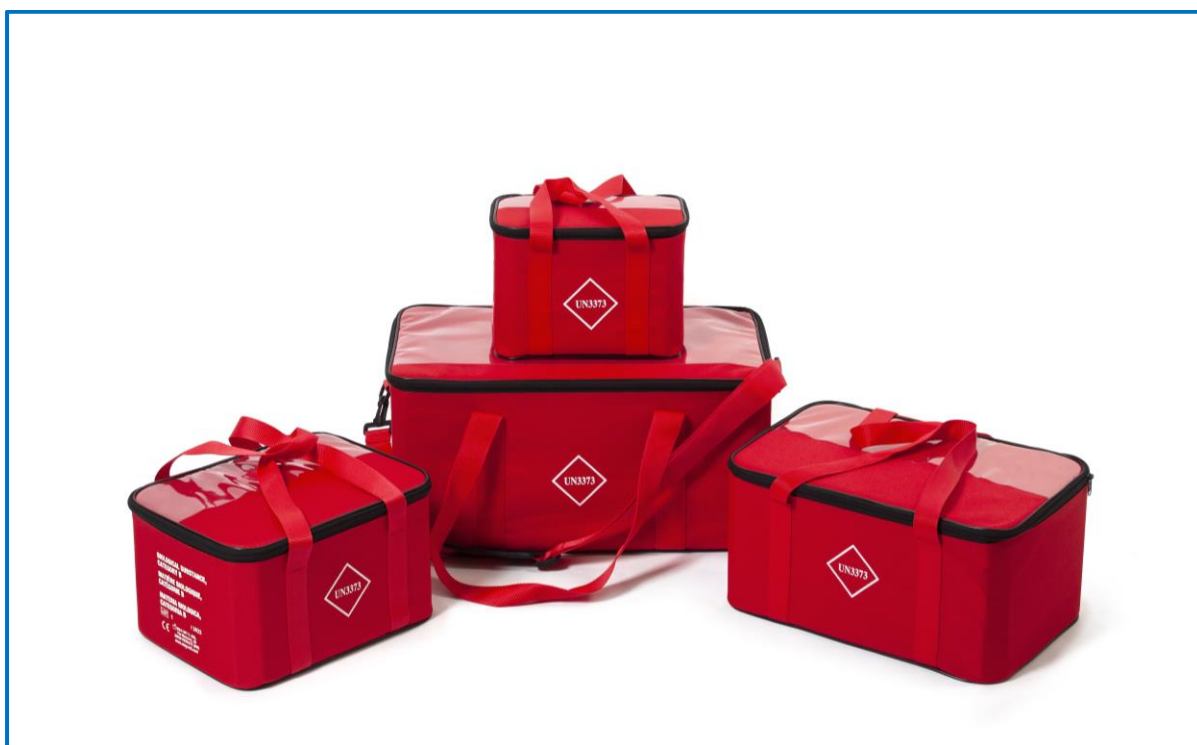
- ✓ **Highly absorbent tissue** made of non-woven fabric
- ✓ **Instructions of use and symbols** required by law
- ✓ Polycarbonate tray for documents
- ✓ Zinc-coated safety hooks
- ✓ Airtight silicone seal


Benefits

- ✓ **Transparent** to easily spot any accidental spills
- ✓ **Light and easy to carry**
- ✓ **Customization available** upon request
- ✓ **Modular accessories available**
- ✓ All components are **latex free**



BIO 101, 102, 103, 104: Isothermal bags for short distance transport



 Specifications				
	DIMENSIONS	WEIGHT	VOLUME	CAPACITY
BIO 101	280x200x190 mm	0.42 Kg	10 litres	1 Container BIO 01P
BIO 102	330x260x190 mm	0.63 Kg	16 litres	1 Container BIO 02S
BIO 103	410x260x210 mm	0.81 Kg	22 litres	1 Container BIO 03M
BIO 104	540x320x260 mm	1.3 Kg	41 litres	1 Container BIO 04 L

Combined solution

- ✓ **Designed to be used along with the secondary containers BIO 01P, 02S, 03M, 04L and the different sizes of BIO BAGS**

Features

- ✓ **Insulation made of aluminium and expanded polyethylene**
- ✓ **Suitable for short-distance transport (max. 3 hours)**
- ✓ **External pocket for documents**
- ✓ **Specific compartment in the lid for cooling plates**
- ✓ **Handles for transport**
- ✓ **Shoulder strap (BIO 104 only)**
- ✓ **Registered as IVD Medical Devices (CE Marking)**
- ✓ **UN 3373 Marking required by law**

Benefits

- ✓ **Light and easy to carry**
- ✓ **Modular accessories available for each size**
- ✓ **Optional use of cooling plates for further thermal insulation**
- ✓ **Latex free**
- ✓ **Customization available upon request**



BIO 04PP, BIO 06PP: Isothermal bags for long- distance transport



Specifications

	EXTERNAL DIMENSIONS	INTERNAL DIMENSIONS	WEIGHT	VOLUME
BIO 04 PP	445x320x290 mm	395x245x190 mm	1.60 Kg	18 litres
BIO 06 PP	620x400x350 mm	500x300x250 mm	3.20 Kg	37.5 litres

NFC/Bluetooth Technology

- ✓ It is possible to insert a data-logger equipped with NFC or Bluetooth technology to measure and track the temperature during transport

Features

- ✓ Composed of:
 - **Expanded polypropylene box** (inside)
 - **Expanded polyethylene bag** (outside)
- ✓ **Specific compartment in the lid for cooling plates**
- ✓ Snap fasteners and **holes for security seals**
- ✓ External **pocket for ID badges** (Barcode/RFID)
- ✓ Handles and shoulder strap for **easy handling**
- ✓ **Registered as IVD Medical Devices (CE Marking)**

Combined solution

- ✓ **Designed to be used along with the secondary containers BIO 03M/04L and the different sizes of BIO BAGS**

Benefits

- ✓ **Cold life up to 17 hours**
- ✓ **Light and easy to carry**
- ✓ Customization available upon request



TEMPERATURE STABILIZERS

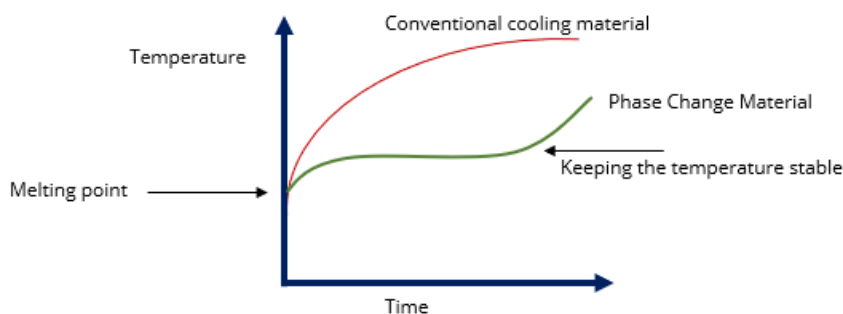
For the controlled temperature transport of biological samples

In order to transport thermosensitive products correctly, **M&G recommends the use of temperature stabilizers**: HDPE plates filled with **Phase Change Material**. **PCMs** are substances which store and release energy during their phase change. **When melting, they slowly absorb a large quantity of heat from the surrounding environment.**

Temperature stabilizers must be **kept at +2°C for at least 12 hours before use** – until the material inside becomes **completely solid**. When used in combination with our isothermal bags, the **temperature during transport is maintained stable for hours without any risks of overheating or overcooling.**

Moreover, temperature stabilizers are **available for 3 different temperatures** to suit different transport needs: **-30°C, +4°C and +22°C.**

This cutting-edge passive cooling system is an excellent replacement for electric portable refrigerators and conventional cooling plates that need to be kept below 0°C and cannot be placed in direct contact with the samples.



Benefits

- ✓ The plates can be directly in contact with the material transported
- ✓ No risk of overheating or overcooling
- ✓ The temperature is maintained stable for several hours
- ✓ LCD thermometer showing the temperature of the plate
- ✓ Four different sizes available, designed to perfectly fit inside H-BIN BIOTRANSPORT bags and containers.
- ✓ Three different temperatures available for different transport needs: -30°C, +22°C, +4°C

Quantity of material

- ✓ When the quantity of material inside the bags increases, the number of temperature stabilizers required decreases.
- ✓ When H-BIN BIOTRANSPORT bags are completely full, their ability to maintain the temperature within the prescribed ranges improves.

External temperature

- ✓ A higher number of temperature stabilizers is required when there is a significant difference between the temperature outside and inside the bag. (e.g.: +40°C outside and +4°C inside)

Transport Duration

- ✓ A higher number of temperature stabilizers is required for longer journeys.

Sizes Available

	TEMPERATURE	DIMENSIONS	WEIGHT
TS 4C 200	+4°C	165x88x21 mm	200 g
TS 4C 650	+4°C	210x130x40 mm	720 g
TS 4C 1000	+4°C	360x210x18 mm	1 Kg
TS 04C 2000	+4°C	380x215x26 mm	2.3 Kg

Thermal insulation tests

Since the early phases of designing and prototyping, **several tests were carried out on BIO 04PP and 06PP** to evaluate their performances.

In charge of the certification of the system (**bags + temperature stabilizers**) was the **Laboratory SSCCP, a special body of the Chamber of Commerce of Milan**, accredited as a certification laboratory (accreditation number SSCCP 0173) by **ACCREDIA**, the Italian Accreditation Body.

By using a **climate chamber, different climatic conditions with temperatures ranging from -12°C to +40°C were simulated**. The aim was to test the thermal insulation of the bags and their ability to **maintain the internal temperature within the required ranges**. This was measured by a probe positioned among the blood bags (filled with water).

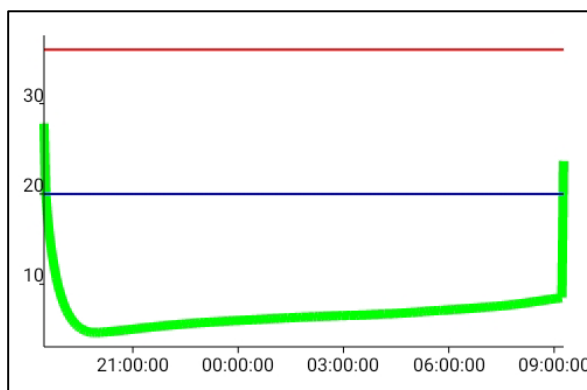
Below are some of the temperature reports from the tests.

TEST N. 1: +4°C Transport with secondary container

➤ MATERIAL USED:

- ✓ 1 isothermal bag BIO 04 PP
- ✓ 1 secondary container BIO 03 M
- ✓ 3 temperature stabilizers TS 04C 200 inside the secondary container

The graph shows that **the temperature inside BIO 03 M remained below +10°C for approximately 15 hours**.



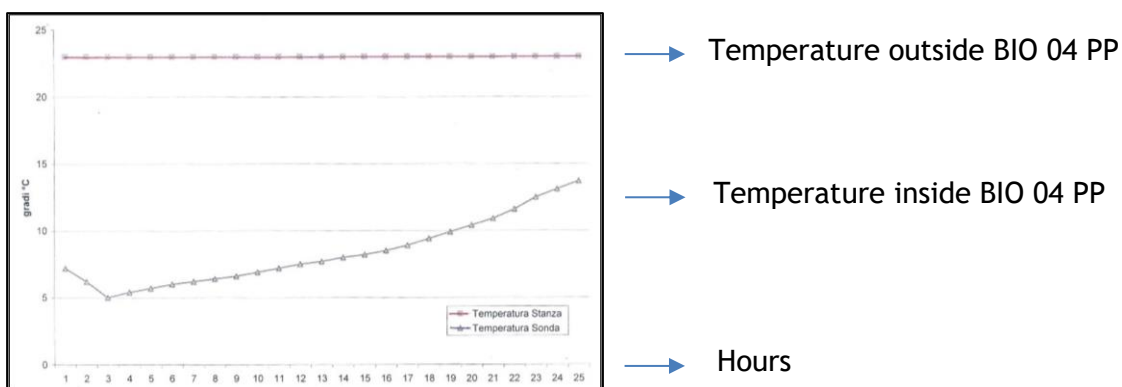
→ Temperature inside BIO 03 M

TEST N. 2: +4°C Transport in +23°C environment

➤ MATERIAL USED:

- ✓ 1 isothermal bag BIO 04 PP
- ✓ 2 temperature stabilizers +4°C (blue coloured)
- ✓ 4 water-filled blood bags (450 ml) previously kept at +4°C for 48 hours

The graph shows that the **temperature inside BIO 04 PP remained below +10°C for approximately 17 hours.**

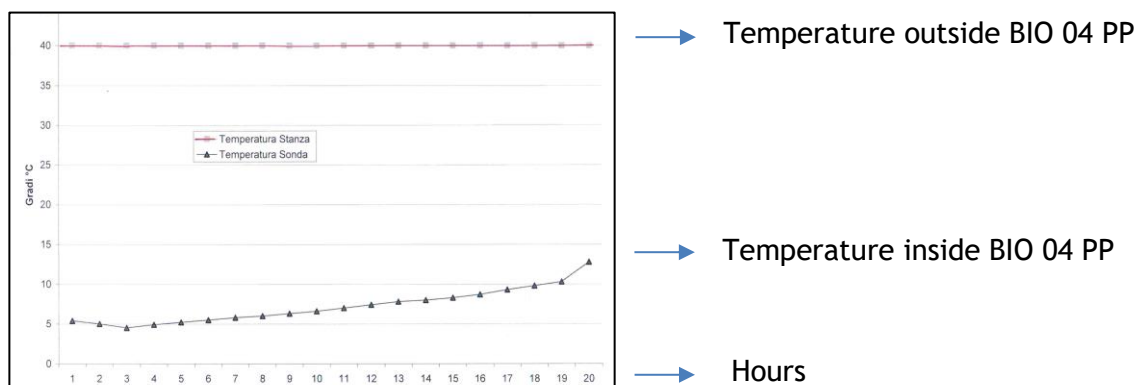


TEST N. 2: +4°C Transport in +40°C environment

➤ MATERIAL USED:

- ✓ 1 isothermal bag BIO 04 PP
- ✓ 2 temperature stabilizers +4°C (blue coloured)
- ✓ 4 water-filled blood bags (450 ml) previously kept at +4°C for 48 hours

The graph shows that the **temperature inside BIO 04 PP remained below +10°C for approximately 16 hours.**



BIO BAG GREEN:

Leakproof security bags made of recycled polyethylene



Features

- ✓ Made of **recycled and recyclable (if not infected) LDPE**
- ✓ **Wide tamper-proof (VOID) sealing band**
- ✓ **Water and airtight seal**
- ✓ **Extremely resistant to tears**
- ✓ **Practical tear strip opening**, without the need of blades/sharp objects
- ✓ External **pocket for documents**
- ✓ **Instructions for use** and **hazard symbols** printed on the bag
- ✓ **Identification and tracking possible** with univocal numeration (barcode)

👍 Benefits

- ✓ **Transparent LDPE** to easily spot any accidental spills
- ✓ **Traceability of each bag**
- ✓ **Customization available** (minimum quantity required)

📏 Sizes Available

- ✓ **BIO BAG 01 GREEN:** 195x335 mm
- ✓ **BIO BAG 02 GREEN:** 225x410 mm

📋 Compliance

- ✓ **Registered as Class I Medical Devices (CE Marking)**
- ✓ **A.D.R.** (European Agreement concerning the International Carriage of Dangerous Goods by Road) – **Packing Instructions P 650**
- ✓ **Blue Angel Certificate (Ecolabel)**
- ✓ **Guidelines by the Italian Ministry of Health**



MINI BIO ISOTHERM H: Container for +37°C transport of test tubes and syringes



Features

- ✓ Made of **expanded polypropylene**
- ✓ **Equipped with a heating pad** maintaining the required temperature
- ✓ **External case with pocket for documents** available

Benefits

- ✓ **The temperature is kept between +30°C and +38°C for up to 5 hours**
- ✓ **The hooks prevent the heating pad from touching the samples**

Specifications

- ✓ **Dimensions:** 195x95x61 mm
- ✓ **Weight:** 103 g
- ✓ **Capacity:** 4 test tubes 13x75 or 2 test tubes 13x100

MINI-BIO ISOTHERM C:

Container for +4°C transport of test tubes and syringes



Features

- ✓ Made of **expanded polypropylene**
- ✓ **Cooling plate included**
- ✓ **External case with pocket for documents** available

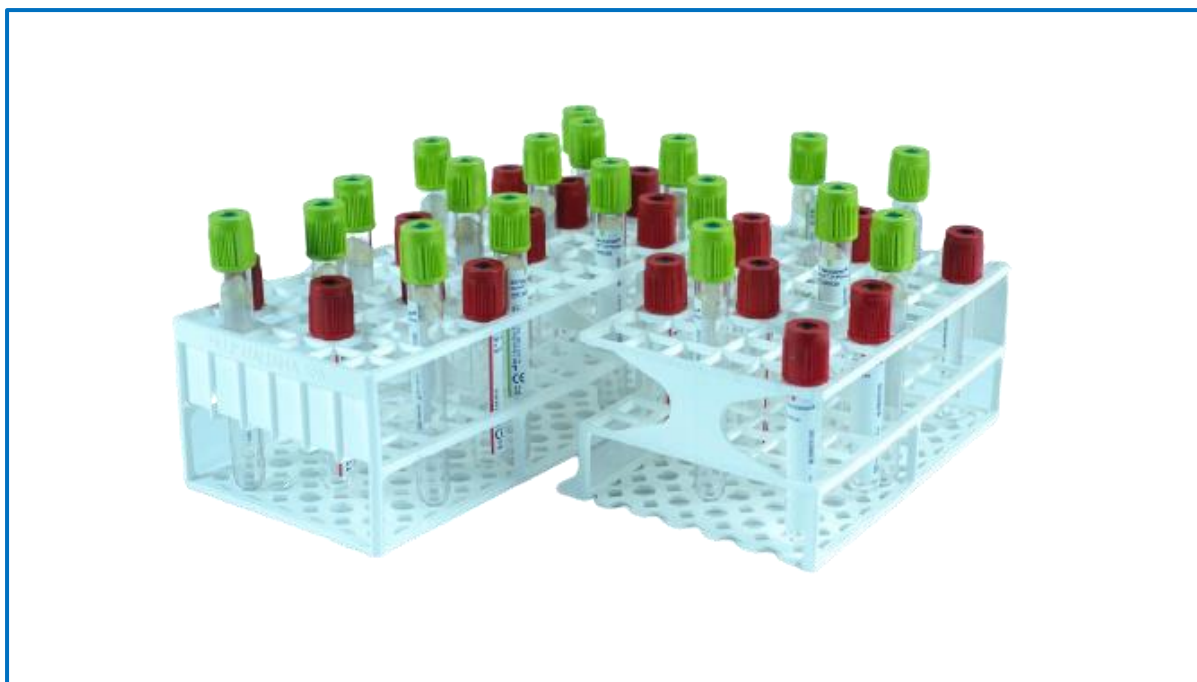
Benefits

- ✓ **No risk of condensation**
- ✓ **The temperature is kept between +2°C and +8°C for up to 6 hours**

Specifications

- ✓ **Dimensions:** 195x95x61 mm
- ✓ **Weight:** 128 g
- ✓ **Capacity:** 4 tubes 13x75 **or** 2 tubes 13x100 **or** 2 syringes

PP 13 90/60, PP 17 60/40: Polypropylene tube racks



Features

- ✓ Suitable for \varnothing 13 mm and \varnothing 16 mm test tubes
- ✓ Made of polypropylene
- ✓ Modular for all the secondary containers H-BIN BIOTRANSPORT
- ✓ Latex free

Specifications

	DIMENSIONS	WEIGHT	CAPACITY
PP 13 60	165x100x68 mm	65 g	60 test tubes \varnothing 13 mm
PP 13 90	244x100x68 mm	95 g	90 test tubes \varnothing 13 mm
PP 17 40	165x100x68 mm	65 g	40 test tubes \varnothing 16 mm
PP 17 60	244x100x68 mm	95 g	60 test tubes \varnothing 16 mm

PP 13 S, PP 17 S: Expanded polyethylene tube racks



Features

- ✓ Suitable for \varnothing 13mm and \varnothing 16 mm test tubes
- ✓ Made of expanded polyethylene
- ✓ Modular for all secondary containers H-BIN BIOTRANSPORT
- ✓ All components are latex free

Specifications

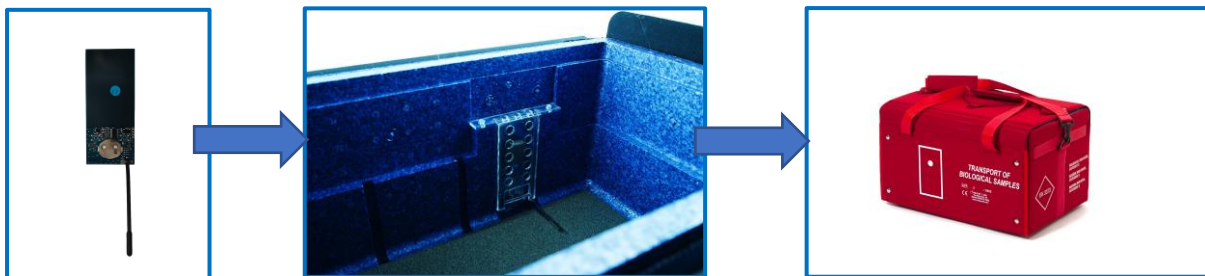
	DIMENSIONS	WEIGHT	CAPACITY
PP 13 S	160x100x65 mm	45 g	45 test tubes \varnothing 13 mm
PP 17 S	160x100x103 mm	55 g	28 test tubes \varnothing 16 mm

OMB.Lite: NFC Temperature tracking system

OMB.Lite is the software solution for the temperature tracking of blood components, biological samples and pharmaceuticals during transport.

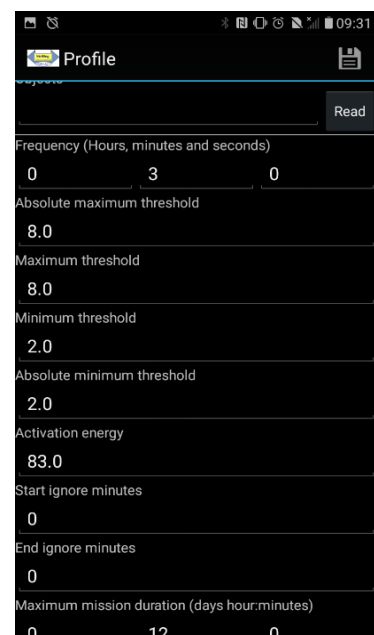
The application is designed to work on **Android devices** and in particular on those equipped with **NFC technology**.

OMB.Lite interfaces with and controls our datalogger TTR (Trip Temp Recorder), which is inserted in the H-BIN BIOTRANSPORT bags and tracks the temperature of the samples during transport.



With OMB.Lite it is possible to:

- ✓ Set **4 different shipping profiles** specific for the type of material transported.
- ✓ **Scan the ID codes of the materials** transported in form of barcode.
- ✓ **Activate the datalogger and upload the profile data** to the memory of the datalogger TTR.
- ✓ **Deactivate the datalogger and download the recorded temperatures.**
- ✓ **Elaborate the transport report in PDF format.**
- ✓ **Send the transport report by email.**



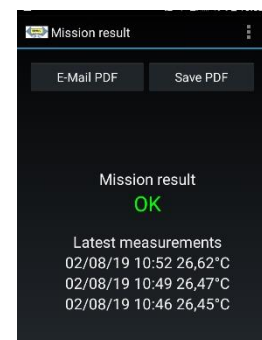
🌡️ Temperature recording

- ✓ To activate the datalogger, **launch the application OMB.Lite** and **place the smartphone on the icon printed on the side of the bag.**
- ✓ **Once activated, the datalogger works automatically and keeps recording the temperature for the whole duration of transport.**



📄 Data Download

- ✓ To stop the datalogger, **launch OMB.Lite, place the phone on the side of the bag and follow the instructions on the display.**
- ✓ The data and **temperatures recorded will be shown both in a table and a graph.**
- ✓ It is then possible to **download the temperature report in PDF format and send it via email.**

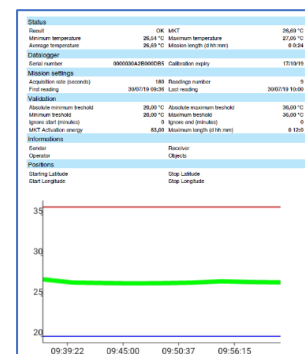


👍 Benefits

- ✓ **Particularly easy to use and to integrate in the handling process of the material.**
- ✓ The most **practical and economical solution** on the market.
- ✓ **Use of non-proprietary hardware**, available on the market.
- ✓ **It is able to work automatically**, without needing to interface with an existing management system or any other platforms.

📊 Information recorded by the Data-logger

- ✓ **Starting point and destination**
- ✓ **Operator**
- ✓ **Type of material transported**
- ✓ **Starting time and date**
- ✓ **Quantities of material and codes**
- ✓ **Temperature thresholds**
- ✓ **Frequency of temperature recording**

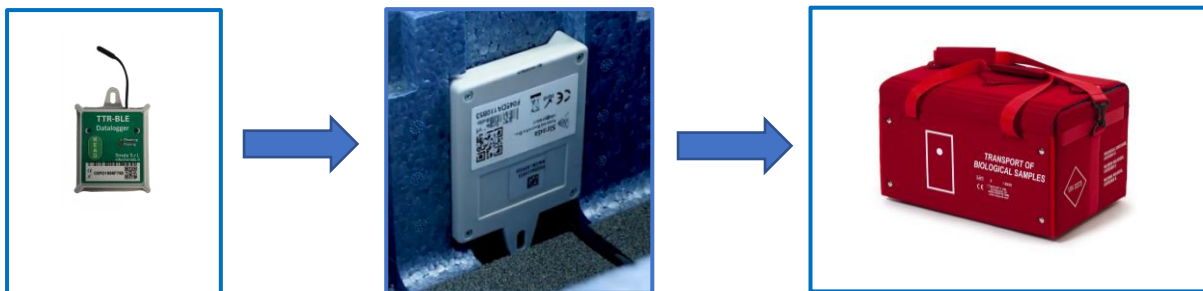


TRACER: Bluetooth temperature tracking system

TRACER is the software solution for the temperature monitoring of blood components, biological samples and pharmaceuticals during transport.

The application is designed to work on **Android devices** equipped with **Bluetooth connection**.

TRACER interfaces with and controls our datalogger TTR (Trip Temp Recorder), which is inserted in the H-BIN BIOTRANSPORT bags and tracks the temperature of the samples during transport.



With the app TRACER it is possible to:

- ✓ Choose a **shipping profile according to the material transported/temperature required**
- ✓ **Set parameters** such as **temperature thresholds** and **recording frequency** for the chosen profile
- ✓ **Set alarms for temperature anomalies during transport**
- ✓ **Check the temperature in real-time during transport**
- ✓ **Deactivate the datalogger and download the temperature report in PDF format.**
- ✓ **Send the transport report to an online database.**

MISSION DATA
✓

Operator:

Departure Point:

Destination:

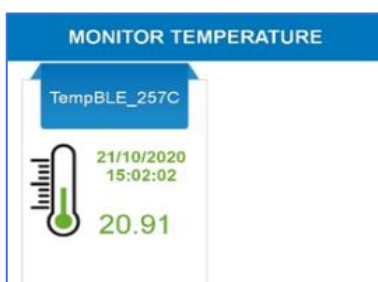
Datalogger Code:

◀ BACK

NEXT ▶

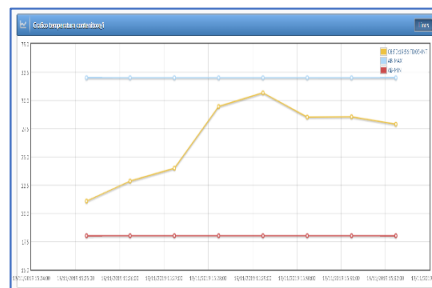
📏 Temperature Recording

- ✓ To activate the datalogger and start tracking the temperature, **launch the application TRACER on the smartphone and select "start mission"**
- ✓ **Once activated, the datalogger works automatically and keeps recording the temperature for the whole duration of transport.**



- ✓ When the data-logger is activated, **it is possible to check the temperature in real time without opening the bag.**
- ✓ Launch the app **TRACER** and click on **"monitor temperature"**. **It is necessary for the phone to be within 10 metres of the bag.**

- ✓ **To deactivate the datalogger, launch TRACER and click on "stop mission".**
- ✓ The data and **temperatures recorded will be shown both in a table and a graph.**
- ✓ It is possible to **download the report in PDF format and send it via email.**



👍 Benefits

- ✓ **Easy to use and to integrate** in the handling process of the material
- ✓ **Use of non-proprietary hardware**, available on the market.
- ✓ **No need to interface with another management system/platform.**

📄 Information recorded by the Data-logger

- ✓ **Starting point and destination**
- ✓ **Operator**
- ✓ **Type of material transported (blood, plasma, etc.)**
- ✓ **Starting time and date**
- ✓ **Quantities of material and codes**
- ✓ **Maximum and minimum temperature threshold**
- ✓ **Frequency of temperature recording**



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