



Sunflower

A portable infant warmer for the developing world



Newborn Deaths

4 million newborn deaths each year

Infants must be kept warm constantly

Many countries do not have reliable sources of electricity

Incubators	→	Expensive
	→	Difficult to maintain
	→	Not easily portable

Customer Need	Design Attribute	Specification
Warm the baby	Transmission of heat	60 W, increase temp 6-11°C
Keep bassinet warm during power outage	Heat retention	36 - 37°C (body temperature)
Allows blue light through	Transparent sodium polyacrylate bed	455-465 nm wavelength

Market Need

Product

Challenges

Next Steps



Yellow A


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Market Need

Product

Challenges

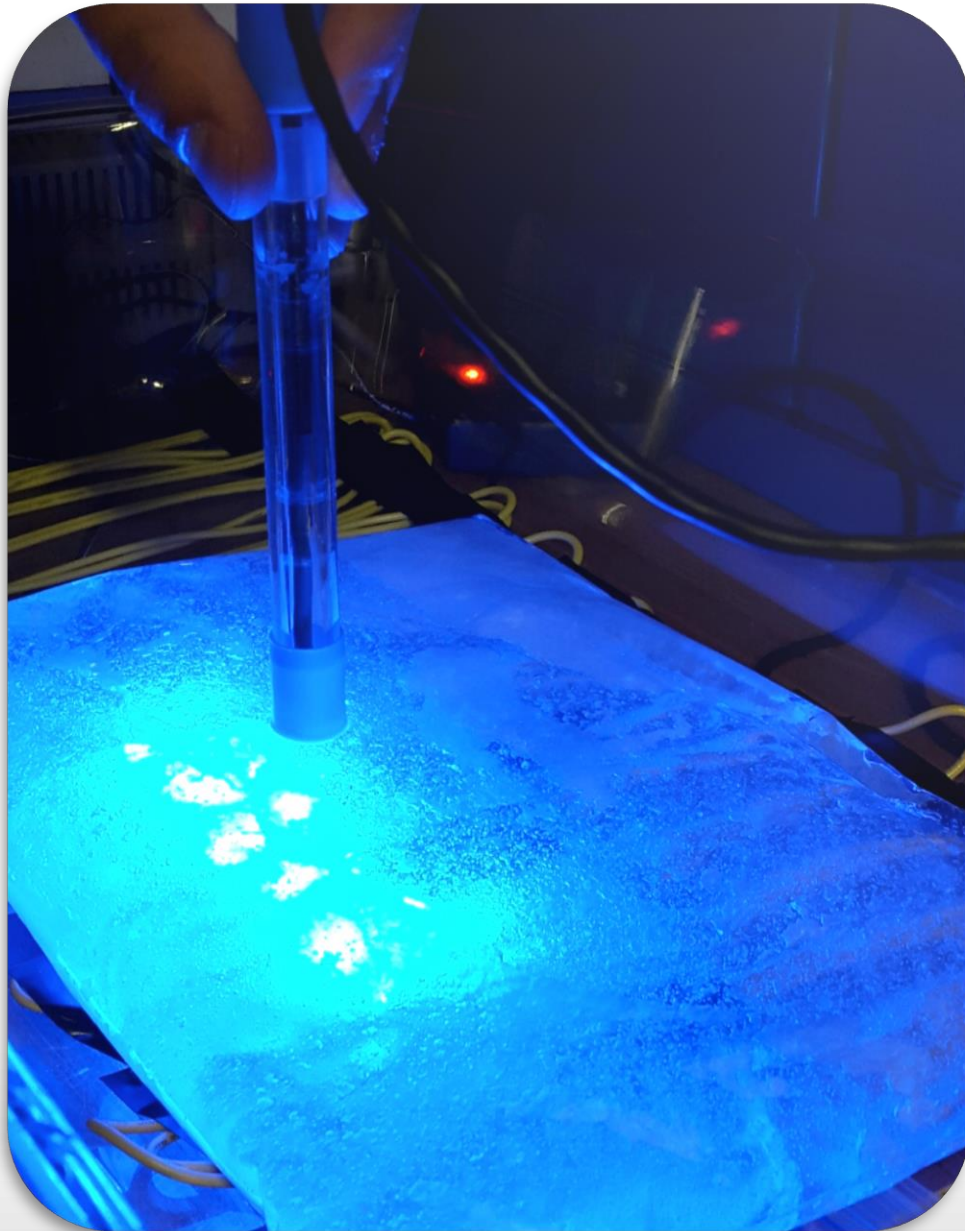
Next Steps



Yellow A

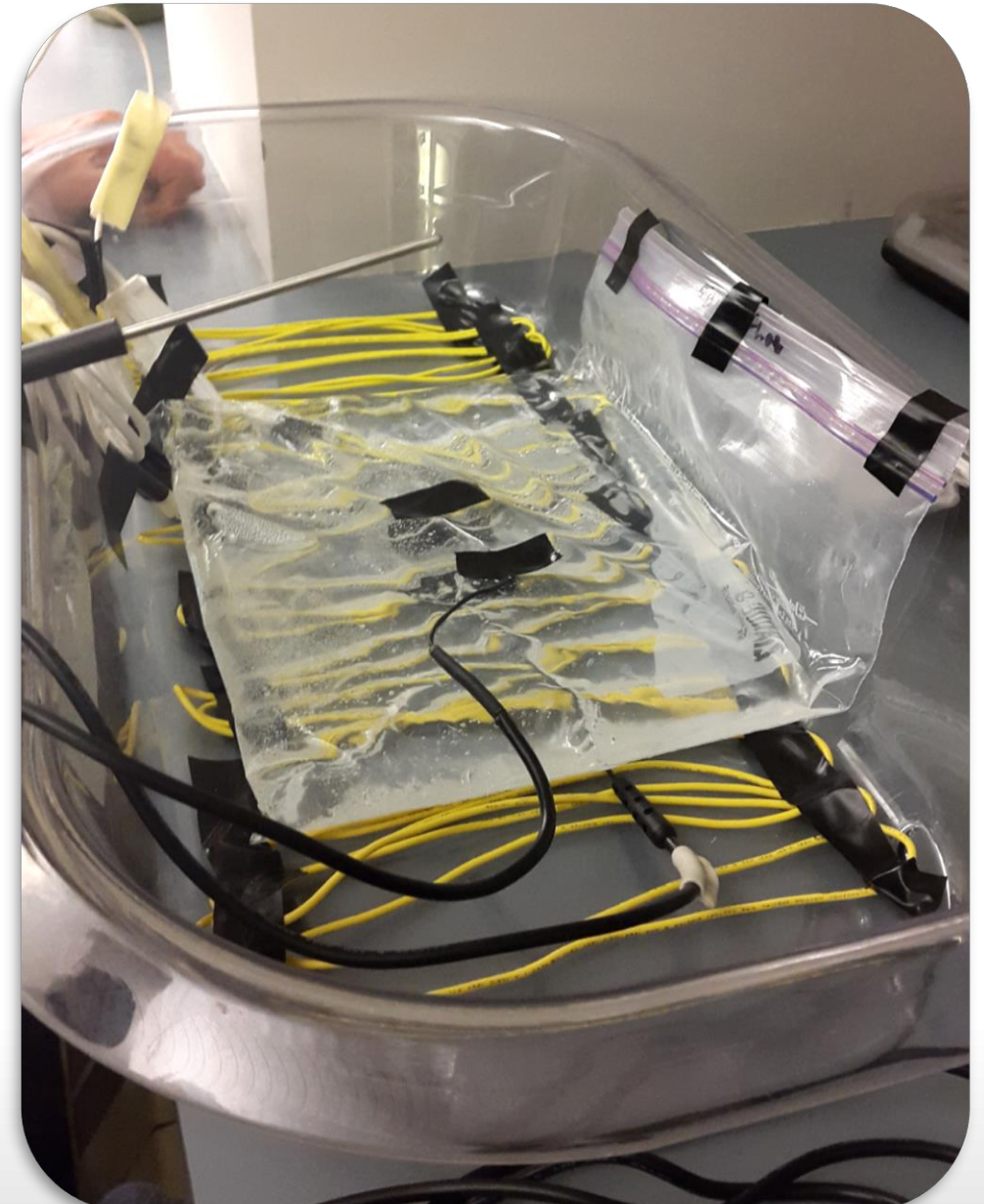

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Material Testing



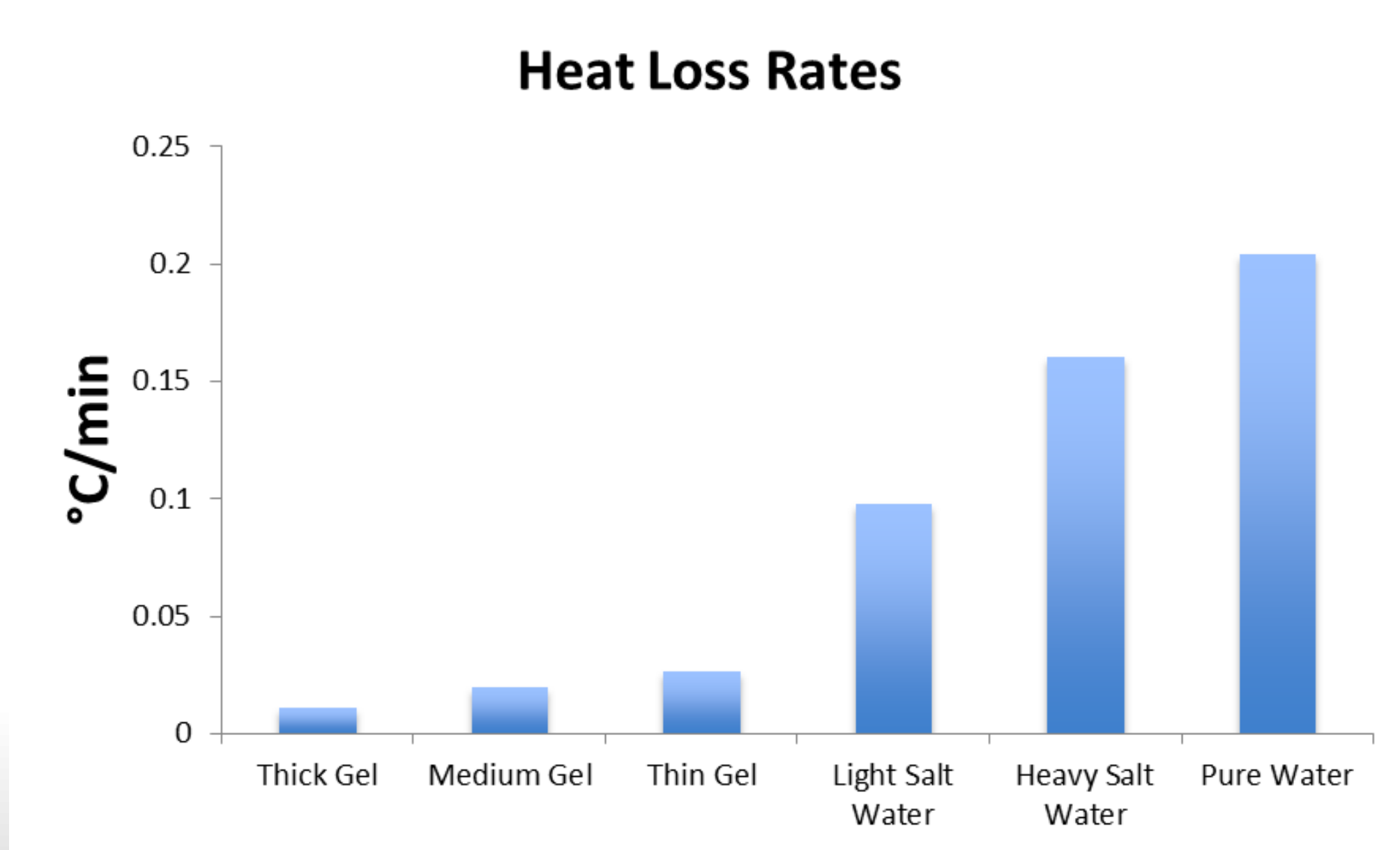
Mattress with Blue Light

Yellow A



Mattress with Resistive Heating

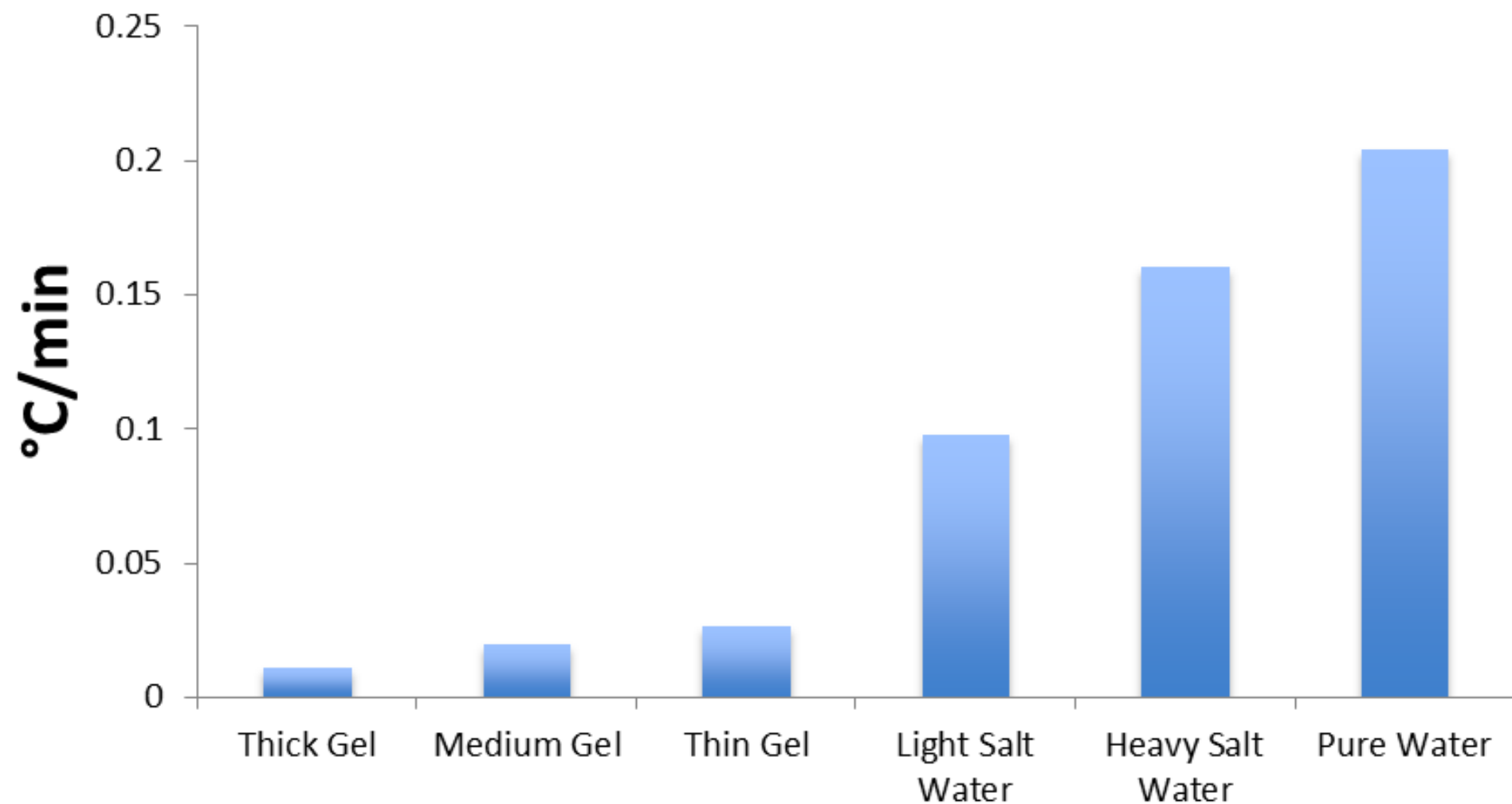
Material Testing Results



Material Testing Results

Chosen: Between thin and medium gel

Heat Loss Rates



**Mattress
Implementation**

Power Supply

**Temperature
Feedback**



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Helping Newborns Grow