

# Chimex Ltd., Saint Petersburg, Russia



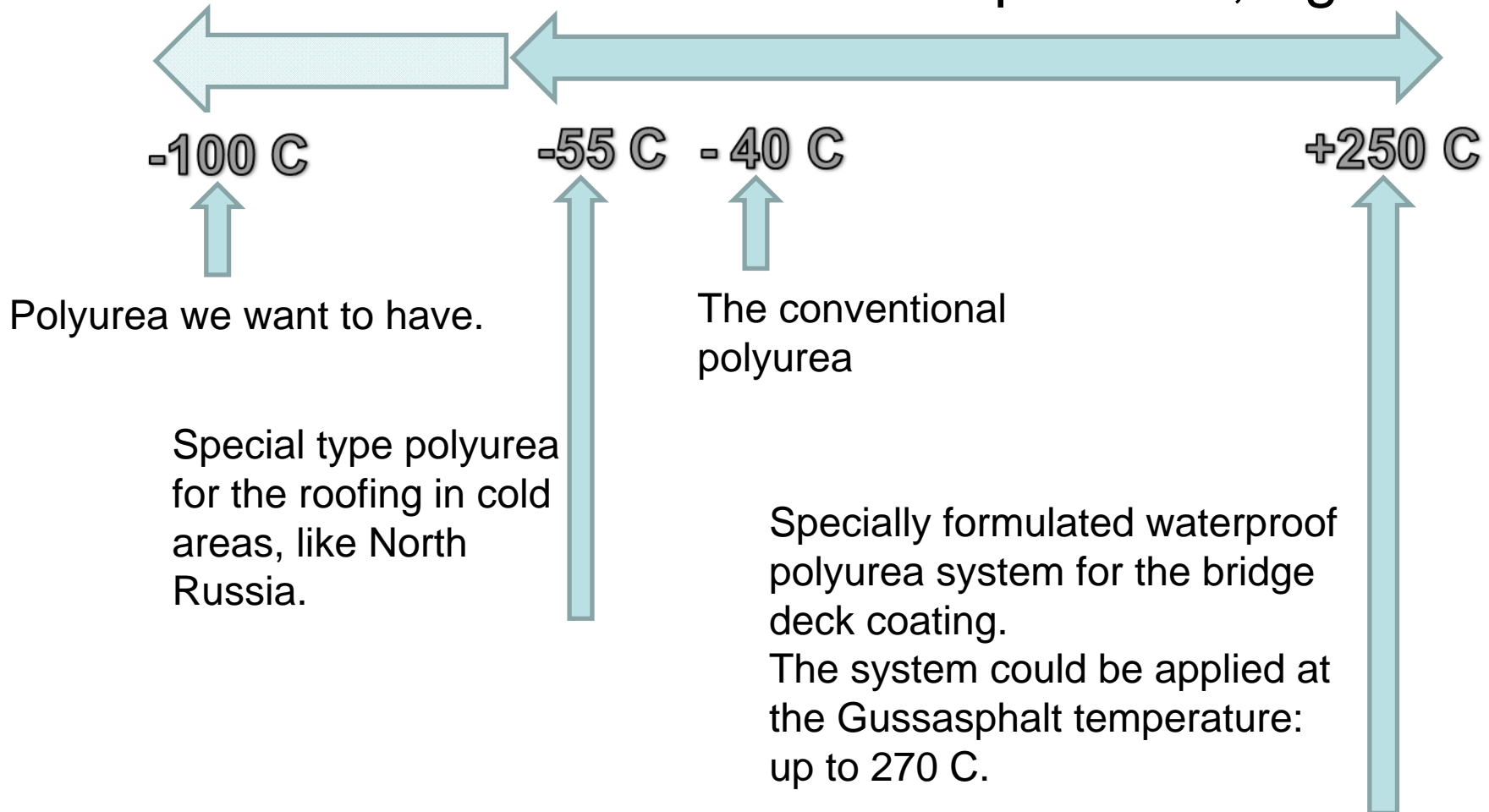
- Since 1991 we have been producing epoxies, in 2007 we started making polyurea systems including special types of polyurea.



# Extreme temperatures



## The Glass Transition Temperature, T<sub>g</sub>

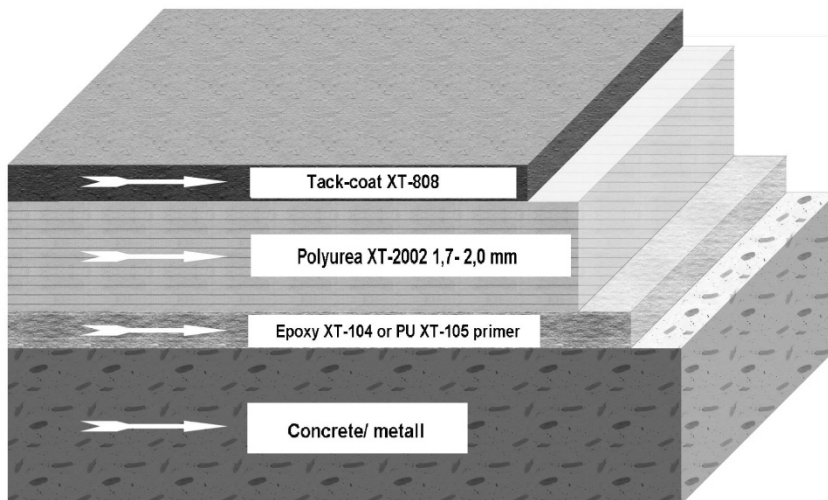


# High temperature application



## Case study: Waterproof coating for bridge deck

- Location: Saint Petersburg, Russia
- Exposure: Asphalt wearing, huge traffic conditions
- Substrate: Concrete and Steel
- Thickness: 1,7-2,0 mm
- Primer: epoxy XT-104
- Material: XT-2002
- Surface prep: Sand Blast
- Size: 50000 sq m (2007-2010)



# Low temperature application

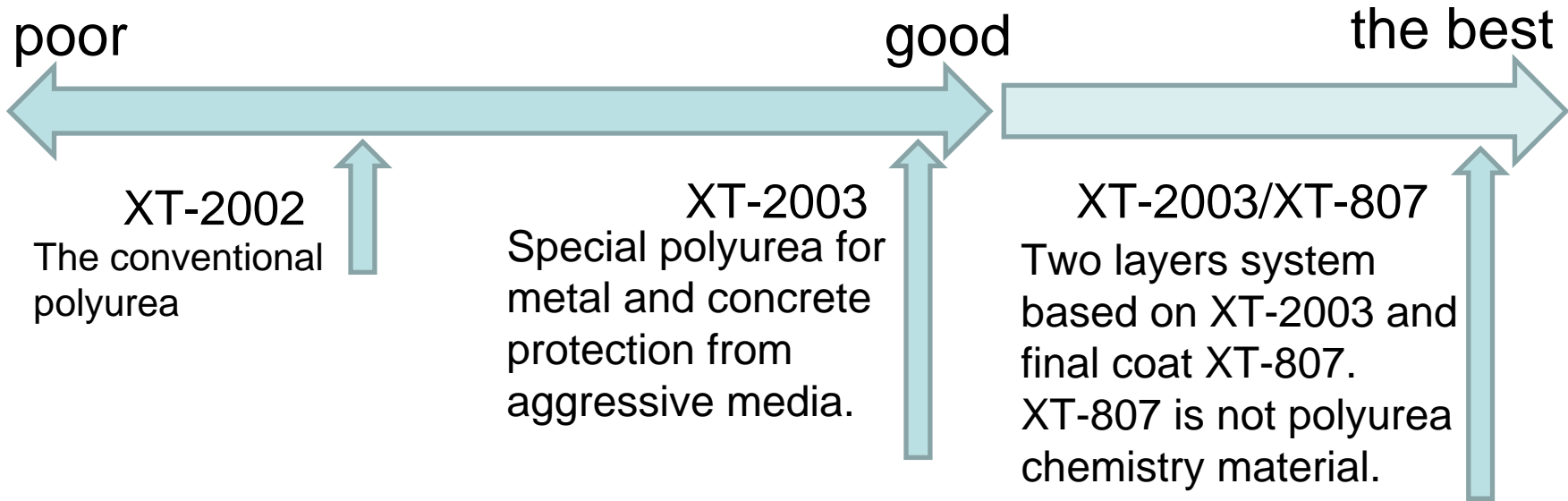


## Case study: Roofing in Natural Gas Plant

- Location: Urengoy, Russia
- Exposure: -50...-55 C in winter time
- Substrate: Steel
- Thickness: 1,2-1,5 mm
- Primer: polyurethane XT-105
- Material: XT-2002 (special type)
- Size: 7000 sq. m



# Hydrolytic resistance of polyurea



Totally destroyed in H<sub>2</sub>SO<sub>4</sub> conc, HCl conc, HF, HNO<sub>3</sub> etc during 2 days of exposition.

Aggressive media, 2 weeks of exp.	W, %	Aggressive media, 2 weeks of exp.	W, %
NaClO, conc	0,30	HCl, 37% w/w, 25 C	0,45
NaCl, conc	0,91	HF, 40% w/w, 25 C	0,90
H <sub>2</sub> SO <sub>4</sub> , 20 %, 60 C	0,28	H <sub>2</sub> SO <sub>4</sub> , 98% w/w, 25 C	0,43
NaOH, 45 %, 60 C	0,22		
HCl, 10%, 60 C	0,35		

# The drinking water plant in Vladivostok



## Case study: **Waterproof and chemical resistible coating for concrete**

- Location: Vladivostok, Russia
- Exposure: NaCl sat., NaClO sat., “active chlorine”
- Substrate: Concrete
- Thickness: 3,0-3,5 mm
- Primer: polyurethane XT-105
- Material: XT-2003
- Surface prep: Sand Blast
- Size: 2500 sq m (2010)



- The first stage of project is running since July, 2010.
- Positive experience will allow us to expend this technology all over Russia.

# Where are we testing it now?



- The sewer network of Moscow (Russia).  
Zones of variable wettability are points of concrete and metal destruction.
- Flooring in Copper Industrial Complex in Novgorod (Russia).  
Electrolysis guilds have many the polymer concrete capacities to be repaired and floors which are under acid media attack.

## Prospects and challenges

- To improve it, to make it better, stronger, more resistible to wide range of chemistry etc
- To amend a fool-proof polyurea technology.
- To win the market of the traditional materials.

# Not aggressive, but natural



## Case study: Artificial open-air pools and reservoirs

- Location: Saint Petersburg (suburb), Russia
- Exposure: just water, fish, insects ☺
- Substrate: Geotextile
- Thickness: 3,0-3,5 mm
- Material: XT-2002
- Size: 2500 sq m (2010)



Thank you!