

# GLOXIL iM16k A in Polypropylene copolymer Glass bubbles combined with talc



## Results

### Objective:

Density / weight reduction and still good mechanical properties

#### PP Compound Copolymer Bormod™ BF970MO

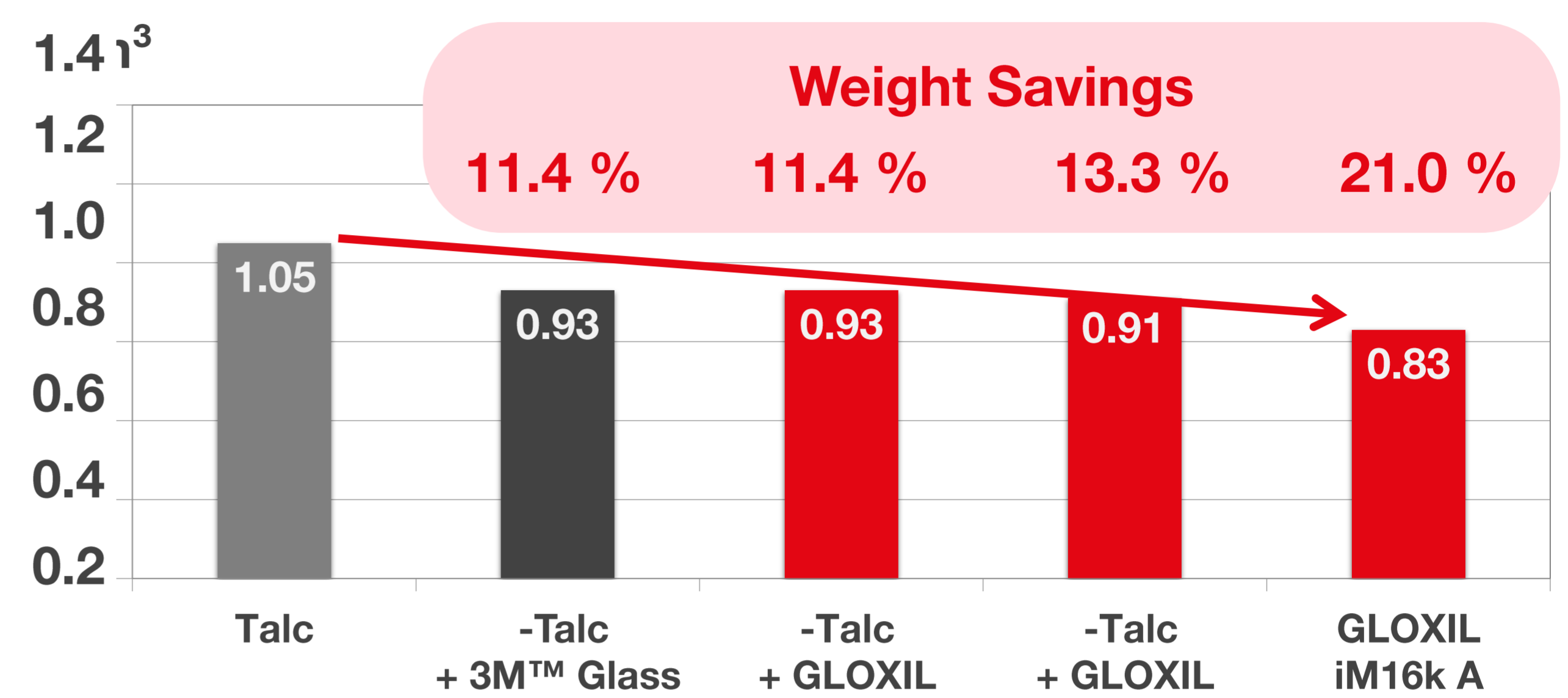
Borealis

MFR 20 g/10 min (230 °C, 2.16 kg)

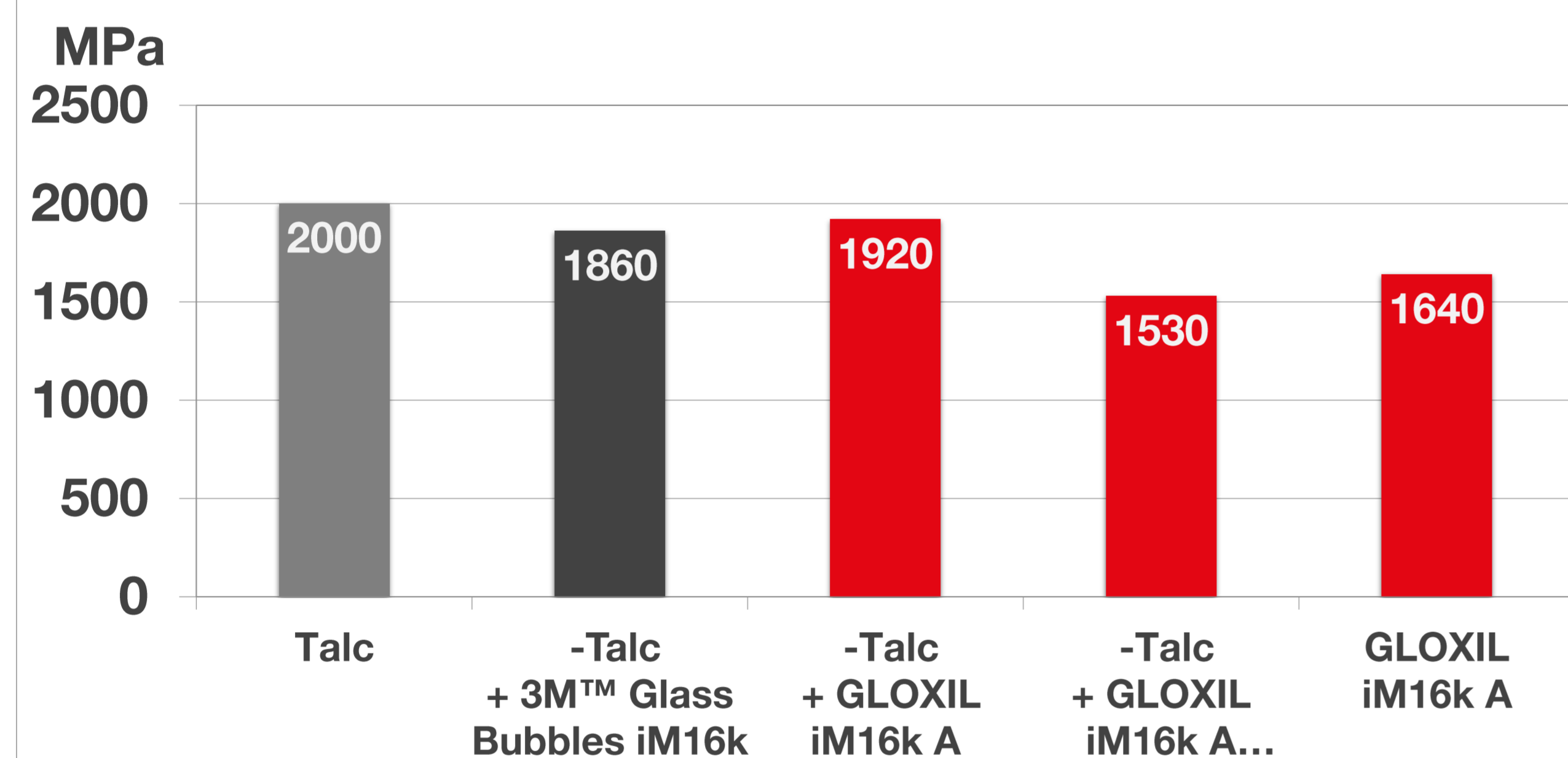
Talc	20 % (m/m) 7 % (v/v)	10 % (m/m) 3 % (v/v)	10 % (m/m) 3 % (v/v)	10 % (m/m) 3 % (v/v)	---
<b>Fusabond P 613</b> PP-g-MAH, 0.5 to 1 % MAH, Dow	---	6 % (m/m) 6 % (v/v)	6 % (m/m) 6 % (v/v)	6 % (m/m) 6 % (v/v)	5 % (m/m) 4 % (v/v)
<b>3M™ Glass Bubbles iM16k</b>	---	5 % (m/m) 10 % (v/v)	---	---	---
<b>GLOXIL iM16k A</b>	---	---	5 % (m/m) 10 % (v/v)	5 % (m/m) 10 % (v/v)	10 % (m/m) 18 % (v/v)
<b>Infuse™ 9000</b> Olefin Block Copolymer	---	---	---	10 % (m/m) 10 % (v/v)	---
<b>Total</b>	<b>100</b>			<b>100</b>	<b>100</b>

Data determined by 3M Advanced Materials Division, Special Additives Laboratory

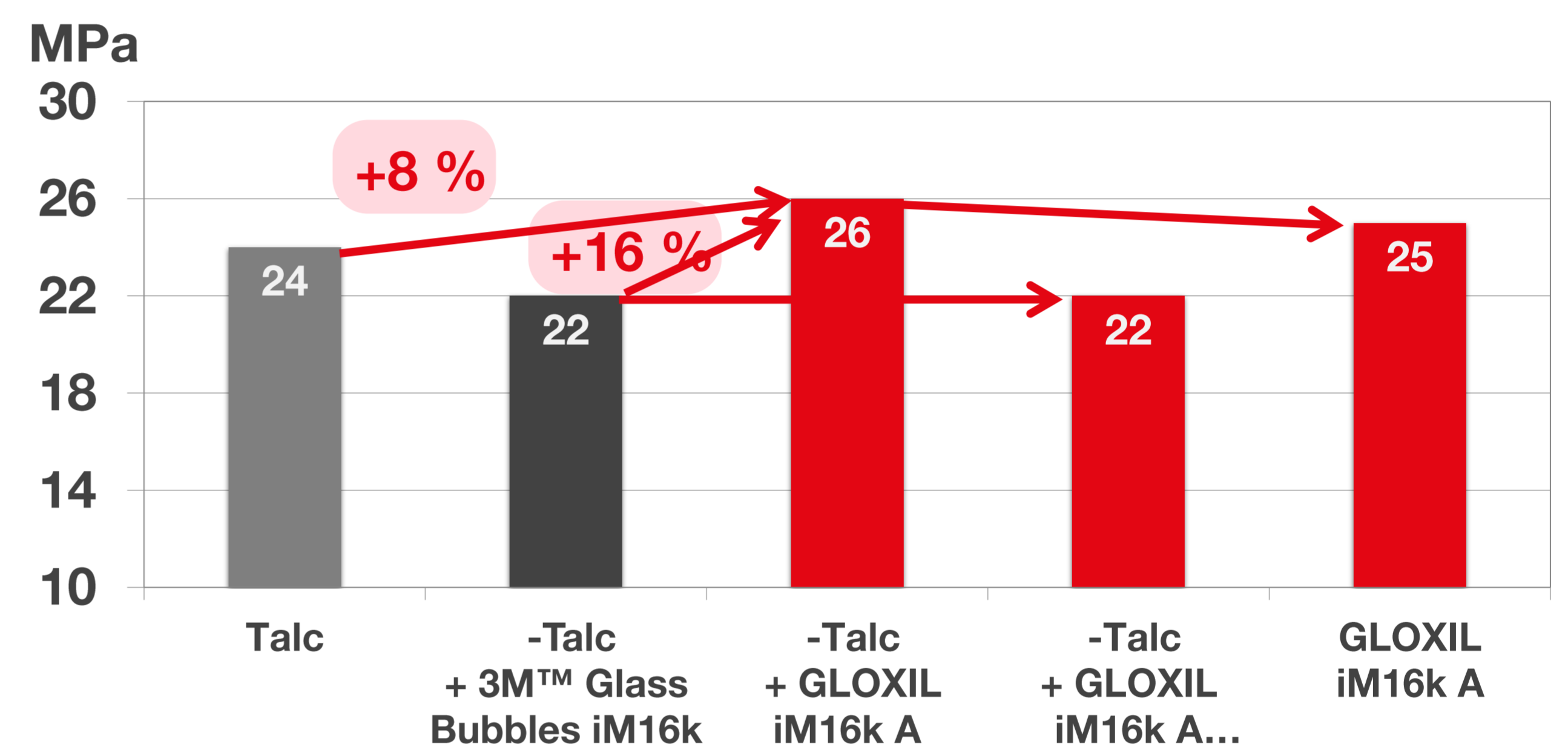
### Density and Weight Reduction (measured)



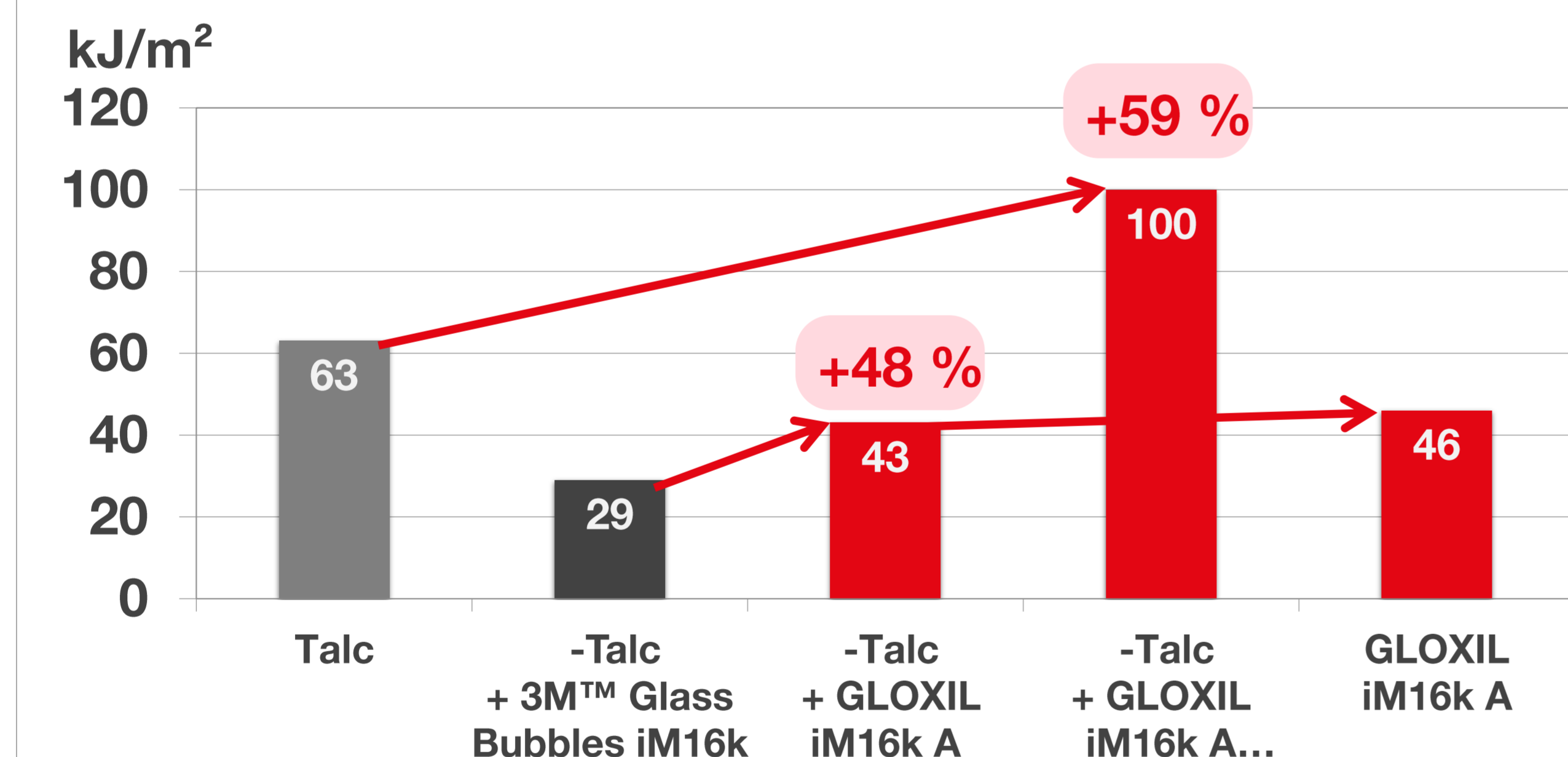
### Tensile Modulus



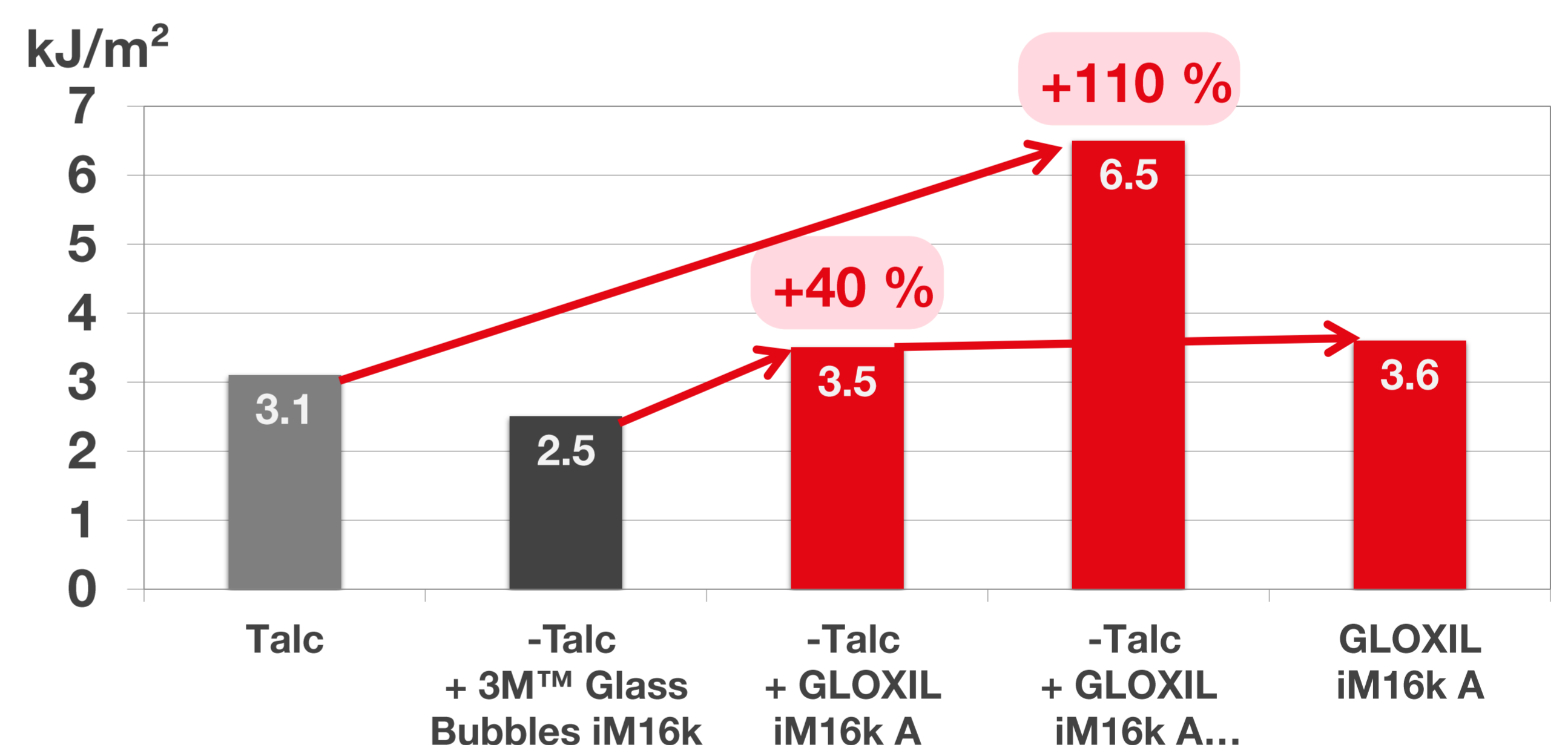
### Yield Stress



### Impact Strength Charpy



### Notched Impact Strength Charpy



## Summary

**GLOXIL iM16k A** shows as partial and full replacement of talc compared to PP Copo T 20 without hollow glass spheres:

- Full replacement: slightly lower stiffness
- Partial replacement: comparable stiffness
- + Reduced density / weight saving potential up to 21 %
- + Increase in yield stress (and thus potential for introduction of impact modifier)
- + Hardly any loss of yield stress despite impact modifier
- + Comparable yield stress at full replacement
- + Increase in impact strength, especially with addition of impact modifier
- + Increase in notched impact strength, especially with addition of impact modifier
- + Comparable notched impact strength at full replacement

➔ **Objective achieved: density / weight reduction and good mechanical properties**

- + Expectation: improved scratch resistance