



## Engineering Truths Checklist

	Fuseview	Metaglas®
<b>DIN 7079 Standard for Fused-Glass Sight Glasses</b>	X	✓
<b>DIN 7080 Standard for Glass Quality</b>	X	✓
<b>USP Type I Standard for Pharmaceutical Use</b>	X	✓
<b>No. 1 Used Sight Glass in the World</b>	X	✓
<b>Parenteral Use (Drugs for Injection)</b>	X	✓
<b>Fusion</b>	✓	✓
<b>Borosilicate Glass</b>	X	✓
<b>Third Party Documentation</b>	X	✓
<b>Free of Cracks, Crevices and Pits</b>	X	✓
<b>Available with Stainless Steel Ring</b>	X	✓
<b>Minimal Bubbles per DIN 7079</b>	X	✓

### DIN 7079 Standard for Fused-Glass Sight Glasses

Metaglas® products meet the DIN 7079 standard for fused-glass sight glasses in metal frames, which means our products meet specifications regarding fusion, thermal properties, minimal bubbles, strength, and chemical resistance. Canty products do not meet this high standard.

### DIN 7080 Standard for Glass Quality

Metaglas products use glass that meets the DIN 7080 standard, which means our glass has passed tests for material strength, shock endurance, chemical resistance and compression. Since Canty's Fuseview is made of soda lime glass, it does not meet DIN 7080.

### USP Type I Standard for Pharmaceutical Use

Metaglas products meet the standard for USP Type I glass, which is the glass most resistant to heat and chemical corrosion. This means that our products have passed test procedures defined by USP29-661. USP standards require the use of Type I borosilicate glass for many applications. Not only do Canty's Fuseviews fail to meet this important standard, they do not qualify as Type II or Type III; rather they are non-parenteral, which means they should not be used in with drugs for injection or applications where chemical durability and heat shock are factors.

### ASME BPE – 2005 Standard for Crevices

Metaglas fused sight glasses meet ASME BPE standards which require the seal point to be free of cracks, crevices and pits (SD-4.7.6 c). An independent lab test showed Canty Fuseview sight glasses do not meet this important standard.

### No. 1 Used Sight Glass in the World

Metaglas brand sight glasses are installed in more plants around the world than any other brand. Metaglas performance is proven in thousands of plants everyday.

**Documentation Guarantee: L.J. Star will always provide third-party documentation of standards compliance and product performance claims.**



## Countering Specific Canty Claims (for internal use only)

### Canty says...      Engineering Truth

<p>Soda lime glass is adequate for pharmaceutical and chemical process applications</p>	<p>Soda lime glass was discovered by the ancient Egyptians, and it has been used through the ages for containers and windows. The only improvement that can be made in soda lime glass is surface hardening by tempering, which does not change the basic problems with the glass in sight glass applications; such as low temperature limits, poor thermal shock and little chemical resistance.</p> <p>Borosilicate glass was developed in the 50s by Dr. Schott in Germany who discovered that by adding a boron salt to the glass greatly improves its chemical resistance and resistance to physical erosion.* Borosilicate glass is the standard process glass in biopharm and chemical industries. All laboratory glass is made from borosilicate glass.</p> <p>Because of its superior thermal shock resistant and high temperature capabilities, Grandma uses Pyrex (borosilicate) glass for her oven baked beans, but drinks her lemonade from a soda lime glass tumbler.</p>
<p>"Boro-Plus" is better than borosilicate glass</p>	<p>An independent test lab* determined that Canty's Boro-Plus glass is actually soda lime glass, not borosilicate glass. Borosilicate glass has 10 times the corrosion resistance than soda lime glass, nearly 3 times more shock resistance and over 70% greater temperature limit.</p>
<p>Metaglas is not fused glass</p>	<p>Metaglas has been tested and meets DIN standards for fused-glass sight glasses.* Fuseview products do not meet these stringent standards.</p> <p>In a Metaglas sight glass, the compressive force is so great that if the metal ring is cut the compressive force will be released, and the ring will shear from the glass. Some mistakenly believe this indicates that the glass was not fused to the ring. Actually, it proves only that the compressive force was stronger than the fusion between the glass and metal.</p>
<p>Boro-Plus glass is a superior formula</p>	<p>An independent test lab* determined that Canty's Boro-Plus glass is actually soda lime glass, mainly due to its insignificant levels of Boron. In addition, the lab classified Boro-Plus glass, according to USP standards, as "non-parenteral." Non-parenteral glass is the lowest grade of USP glass. It is not approved for drugs for injection because it permits unacceptable leaching into the product. In fact, no process should be exposed to this potential problem when a satisfactory alternative (borosilicate) is available.</p>



## Countering Specific Cauty Claims (for internal use only)

### Cauty says...      Engineering Truth

<p>Metaglas is made with an inferior metal</p>	<p>Duplex stainless steel is the standard alloy used for the metal containment ring in Metaglas sight glasses. This alloy is known as a "super stainless". An independent metallurgist has reported that Duplex stainless steel is superior to 316 series stainless steel alloys in corrosion resistance and toughness*, especially in pharmaceutical applications. This is a relatively new alloy; metallurgists have developed a method to incorporate carbon atoms in the crystal matrix, thereby adding the beneficial properties of carbon without sacrificing superior corrosion benefits, even with low levels of nickel. Cauty publishes 316 stainless steel that does not have the superior qualities of duplex stainless steel. Metaglas is also available in Hastelloy, Monel &amp; Carbon Steel.</p>
<p>Fuseview has better fusion</p>	<p>Cauty salespersons may say Fuseview has better fusion, because the glass is softer. However, compression is the important factor, not adhesion.</p> <p>The strength of a sight glass comes from compressing the glass in a metal ring, exhibiting glass's strong characteristic. This is why a Metaglas sight glass is nearly indestructible. Because borosilicate glass has a much lower thermal coefficient than soda lime, Metaglas has nearly 3 times greater compression than Fuseview*, making it the safest sightglass available.</p>

\*Backup documentation available upon request