PROJECT ENGINEERING

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18th March 2003

Dear Steve

With reference to the 2 materials used on the pulse monitors from Nellcor and Datascope, I am glad to report that we have now had them analysed and can identify them.

Sample 1

The Nellcore pulse monitor is produced out of polycarbonate, this is a tough material clear in its natural state but readily lends itself to being coloured. Polycarbonate is a unique thermoplastic material, which combines a high level of mechanical, optical, and thermal properties. It also has outstanding impact strength across a wide range of temperatures from –40C to 140C Combined with rigidity and hardness, it also gives a high gloss finish if the mould tool is polished.

Sample 2

The Datascope pulse monitor is also produced out of polycarbonate but in this instance the material has been compounded with 30% glass, this will give the material greater toughness, rigidity and heat resistance. The presence of glass in the polymer will give a slightly mottled finish to the component as the Datascope sample.

This material can be matched to the colour of the A.B.S. material currently being used, though there is a cost implication, the polycarbonate material being about 60% dearer than the A.B.S. The tools are capable of processing the polycarbonate, but if you would like to change to this material I would be cautious and ask for a sample run to prove the tools, components and any fits or assemblies, prior to a full production run.

Technical data sheets supplied for comparison only.

Yours faithfully

B. Walsh

Brian Walsh

JGP PERRITE Perlex R251

# TECHNICAL DATA SHEET

**Product Description**
PERLEX R251

Polycarbonate

| *PROPERTY* | *TEST METHOD* | *UNITS* | *VALUE* |
|---|---|---|---|
| Elongation at Break | ISO 527 | % | 100 |
| Flexural Yield Strength | ISO 178 | Mpa | 90 |
| Tensile Modulus | ISO 527 | Mpa | 2350 |
| Tensile Yield Strength | ISO 527 | Mpa | 60 |
| Izod Impact (notched) @ 23°C | ASTM D256 | $Kj/m^2$ | 35 |
| Density | ISO 1183 | $g/cm^3$ | 1.20 |
| Melt Flow Rate (300°C & 1.2Kg) | ISO 1133 | g/10min. | 11 |
| Heat Distortion Temperature - @ | ISO 75-2 | °C | 135 |
| Heat Distortion Temperature - @ 1.8 | ISO 75-2 | °C | 125 |
| Vicat Softening Point (1Kg/50°C/Hr) | ISO 306 A | °C | 142 |
| Flammability @ 1.6mm thickness | UL94 EQUIVALENT | Rating | V2 |

Medium flow , high impact PC

**Additional Information**
JGP/Perrite manufacture a wide range of engineering thermoplastic compounds with filled flame retardant,
impact modified variants available. All grades can be colour matched to meet specific customer
The information in this publication is based on our present technical knowledge and experience. In view of
the large number of factors which may influence the processing and use of our products, the present information does not relieve processors and manufacturers of the need to carry out their own tests and

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JGP Perrite is a Division of Vita Thermoplastic Compounds
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JGP PERRITE Perlex R 251 GF30

# TECHNICAL DATA SHEET

**Product Description**

PERLEX R251 GF 30

30% glass fiber filled Polycarbonate.

| *PROPERTY* | *TEST METHOD* | *UNITS* | *VALUE* |
|---|---|---|---|
| Flexural Modulus | ISO 178 | Mpa | 8000 |
| Tensile Modulus | ISO 527 | Mpa | 6100 |
| Tensile Yield Strength | ISO 527 | Mpa | 95 |
| Izod Impact (unnotched) @ 23°C | ASTM D256 | Kj /m² | 30 |
| Density | ISO 1183 | g/cm³ | 1.35 |
| Heat Distortion Temperature - @ | ISO 75-2 | °C | 141 |
| Heat Distortion Temperature - @ 1.8 | ISO 75-2 | °C | 135 |
| Flammability @ 1.6mm thickness | UL94 EQUIVALENT | Rating | HB |
| Flammability @ 3.2mm thickness | UL94 EQUIVALENT | Rating | HB |

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**BRIAN WALSH**

**From:** "Graham Gow" <GGow@JGP-Perrite.co.uk>
**To:** <BRIAN@reedley2.freeserve.co.uk>
**Sent:** Tuesday, March 11, 2003 02:18

Good afternoon Brian I can confirm that the samples you sent us for analysis were,
Sample 1 Polycarbonate
Sample 2 30% glass filled polycarbonate.
Our equivalent materials are 1 Perlex R251, 2 Perlex R251 GF 30
Regards
Graham Gow