Van den Hul
Fusion Technology and The Fusion Series

Sections:

Part 1: The Fusion Series; In short:

As a result of our always continuing research to find technically better solutions, it is a pleasure to introduce our “Fusion Series”.
The “Fusion Series” is a new class of cables manufactured with a totally new conductor type based on a very innovative production technology which combines several advanced processes;

We start with extremely pure copper, zinc and silver which we bring in a vacuum oven.

1. The first step is the evaporation of these three different metals in a vacuum where, due to a strong electrical focusing field, all three metals’ atoms are integrated in the centre. The mechanical result of this process already is a physical wire with a 150 micron diameter.
   The quantities of each of the three metals applied in this process are under rigorous control to produce a very stable product.

2. The next step is an ultra high inductive heating which brings about a complete fusion of the copper, zinc and silver.

3. Immediately (within milliseconds) we apply an ultra fast cooling, causing the final alloy to settle into a totally amorphous state (*).

   *: *Amorphous alloys are produced by rapid solidification of molten metals at cooling rates of about a million degrees centigrade per second. The alloys solidify before the atoms have a chance to segregate or crystallize. The result is a metal alloy with a glass-like atomic structure; a non-crystalline frozen liquid.*

All this complex technical processing results into a shiny gold-coloured conductor with an amorphous structure that is free from intercrystalline boundaries.
Whereas intercrystalline boundaries are directly responsible for extra sonic harshness and rich harmonic structures found in recording and reproduction, any cable designed under our “Fusion Series” is free from these very common mechanical defects and their directly related sonic deficiencies.
Compared to any regular metal cable the highest musical resolution possible now has been achieved!

Our company is very proud to be the originator of this new “Fusion Technology” conductor material and to introduce a new class of cable products based on it.
We expect a long-term effect of the “Fusion Series” on the world audio market.

If you have the opportunity, please give the products designed with our “Fusion Technology” a serious listening test!

Part 2: Fusion Technology; An extended explanation:

Resulting from several years of research, our new Fusion Technology is a breakthrough in metal conductor technology.
Our research led us to the conclusion that a number of important steps in the production process of metal conductors can be improved.

We found that:

1. The purity of the basic metals is essential. Any uncontrolled or unwanted impurity changes the signal transmission properties, such as the direction and/or speed of the information flow in the final conductor.
   Impurities also create undesired metal structures which interfere with specific properties of the pure metal.

2. The speed of the temperature reduction during the last step of the wire manufacturing (i.e. when the final conductor including its silver coating passes the last dye) has a high influence on the final audio properties.
   The steeper this temperature decay, the better: Too high temperatures for too long dramatically worsen the sonic

result afterwards.

3. With the production of conductors it is essential to prevent deforming the metal structure. This means minimizing any mechanical vibrations of free lengths and to as much as possible avoid bending, twisting and winding.

4. Immediate insulation of the final product against oxidation or other chemical activities is essential to further avoid degradation and, with it, harshness in signal transmission.

Unfortunately there are other material parameters which we can not control so well. Especially the internal resistance against material deformation and displacement was an overlooked property, which is essential for high quality signal transmission.
It is generally accepted that a metal is just what it is, and that the resistance per volume unit is the only discriminating factor.
The idea that a metal conductor with electrons moving around in it can be seen as a highway where cars should be able to move in either direction without any obstruction, makes the idea of our research somewhat more clear. Too many bends and crossroads will slow down traffic...

From our research we concluded that:

1. The higher a conducting material's resistance against deformation, the higher is the quality of its audio signal transfer.

2. Also the stability and durability of the signal transfer is higher and longer in conductors with a high internal resistance against material deformation and displacement.

However, mainly for economical reasons, soft metals like copper and silver are very popular: The production speed can be high, thanks to their relative softness and easy deformability.

It was time to design new conductors with a high internal deformation resistance.
Without bothering you too much about all research done, one of our findings was that the metal structure which we have baptised "Fusion Technology", did exactly fulfil our requirements.
Our Fusion Technology conductor material is an amorphous alloy of Copper, Zinc and Silver blended in specific proportions. By smartly combining these three rather soft metals, the final structure is definitely "harder" than can be expected from each of the metals individually.

With our "Fusion Technology" we have designed a metal conductor material with:

1. A low electrical resistance due to enough free electrons per volume unit.

2. A high internal resistance against metal deformation.

3. A very high internal resistance against metal displacement.

4. A completely amorphous structure free from intercrystalline boundaries.

A laboratory scale production gave us extremely promising sonic results, and after some more improvements and fine tuning we started production in larger quantities.

<u>The Conclusion:</u>
The theoretical idea to create such a new type of conductor material was well conceived. Especially the Hybrid version (i. e. combined with our Linear Structured Carbon ® material) sounded much better compared to any metal product we were used to so far.
After further production refinement we are now able to present the world market with new type of metal conductor with excellent properties in sound quality and durability.

A.J. van den Hul

The products currently made with this breakthrough technology are mentioned in the blue table on the next page:

Our “Fusion Series” currently contains the following products:

Interconnects:

The INTEGRATION HYBRID :	Triple screened quadruple core balanced and unbalanced Fusion Series Hybrid audio interconnect
The WATERFALL HYBRID :	Triple screened twin core balanced and unbalanced Fusion Series Hybrid audio interconnect
The COMBINATION HYBRID :	General purpose coaxial Fusion Series Hybrid audio interconnect

Loudspeaker cables:

The BREEZE HYBRID :	Single lead Fusion Series Hybrid multistrand highest quality level loudspeaker cable (7.52 mm² / AWG 8.5)
The INSPIRATION HYBRID :	Twin lead (quadruple conductor) shielded Fusion Series Hybrid loudspeaker cable with separate ground 4x(1.97 mm² / ~AWG 14); Ground: (0.56 mm² / AWG 19.6)