

Carbon comes in multiple forms from diamond to coal and wood.

Carbon delivered from the GDTC process is known as “amorphous” carbon. It is at a stage between char and graphite. In particular our carbon shows some differences in structure, particle size, surface area etc.

Structure affects things like hardness, electrical conductivity, thermal conductivity and is relevant to applications that have specific requirements from those properties.

Particle size is important in paints, dyes and in rubber applications

Surface area is significant in filtration applications.

In order to market the carbon as something other than a heat source we need some process between our delivered product and the end user. CarbonScape is a good example where they have a process which can convert our product into graphite.

From a value perspective high grade graphite would be the best outcome as it has multiple high end uses and is easily convertible to graphene. We have had some success in refractory uses and there has been interest from paint manufacturers and brake pads (specifically for trains). Each of those applications requires some processing of the carbon after delivery.

Rather than adopting a ‘shotgun’ approach we should be looking to conduct R&D into a specific target market. CarbonScape gives us one such opportunity, but it would be prudent to have at least one other market in mind.

I’m not sure if there is such a thing as a carbon processing industry, I am only aware of companies that manufacture carbon black and graphite. That means we have to look to the end user, find what needs to be done to our product and then find someone to do it or do it ourselves.

In the first place I would be inclined to look into:

Refractory - we came very close to acceptance, I need to understand the detail of where we failed

Brake pads - possible simple solution as only need to remove all steel from the product (needs further investigation with a manufacturer to make sure that understanding is still correct)

Resins - awaiting outcome of Japanese discussions

We need an R&D budget and a relationship with some Universities to do the work, or an enthusiastic end user who is prepared to make the investment to reduce his feedstock cost and increase his market and margins.

A left field solution may be Hydrogen manufacture. The simplest way to produce Hydrogen is to pass steam through hot carbon. The issue is collection and storage (thence transport) of the Hydrogen. With fuel cell vehicles gradually gaining in popularity it may be that someone will develop a small scale plant to produce and deliver hydrogen from a roadside fueling location.

Conversion to graphite takes the product directly into batteries and electrodes, but the danger exists for us getting less than 10% of the overall value.

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