

## Carbon Fiber Recycling Program Options

### Preferred Materials

Dry carbon fibers

Can be PAN, rayon, or pitch at 60-62%, as well as fully carbonized fibers, 90% to 99%

Staple, tow on tubes, tow loose boxed, preforms, nonwoven felts/mats, fabric scrap/selvage

Uniform specifications preferred though off spec grades can be considered if grouped

Clean post industrial scrap or excess collected without contamination

Long term commitments of volume preferred to match specifications to specific market applications

Prefer truckload volumes, with repeating delivery schedules

We are not able to take any product that has been resin impregnated at this time.

Once the scrap or excess materials have been reviewed and tested and the materials matched to an existing remanufactured product by CFR, or a new material form or whole product is developed by CFR, we will begin shipping the product from your facilities.

### Long Term Schedule

CFR has certain remanufactured products for which certain carbon fiber scrap can be utilized on an immediate basis. CFR will propose a long term disposal agreement so that there is sufficient time to develop the product applications for each excess material stream. The long term arrangements will also allow for the important return on investment required to develop each new product remanufacturing application.

### Recycling Program Options:

1. Standard Disposal

The *standard disposal option* is the basic contracted service offered by CFR to dispose of the repeating inventories of excess and scrap carbon materials for the Corporation generating the waste stream. This service may require a cost for the service or may be offered at no cost, depending upon the details of the volume and condition, quality and specifications of the carbon fiber involved. If your materials are accepted and our proposal is approved, we can receive and warehouse materials while working to match the material specifications to specific product applications.

2. Purchase and Remanufacture

In cases in which the fiber scrap has some predictable value above processing and remanufacturing costs, a *purchase price* may be offered to the waste stream generator for the disposed materials.

3. Consignment and Remanufacture

For the generator of the excess carbon fiber materials, where a value is likely above direct costs of freight, warehousing, processing and remanufacturing, CFR may propose to the generator a *consignment agreement allowing sufficient time and investment* to process the excess fiber materials to their highest value form. Once CFR produces the new fiber material form from the generator's excess and scrap materials and CFR moves it to the marketplace, the agreed upon revenue per pound of excess materials utilized would be distributed back to the generator on a regular schedule tracked to the incoming lot numbers from the generator. This program allows a higher value return to the generator because it is tied to a specific market contract after development and design of its best and highest use application.

#### 4. Consignment, Processing to Specifications for Buy Back

Where the generator of the excess carbon fiber materials can utilize the remanufactured carbon fibers within their own product applications, a processing contract is worked out in which CFR converts the carbon fiber materials into the new carbon fiber form specifications called for by the generator. A variation to this program allows for the generator to contract for the disposal of one set of excess carbon fiber materials and purchase a new carbon fiber material form from CFR from other supply and different specifications CFR might have available.

#### 5. Disposal structured as a charitable contribution

CFR's parent company, AdTech International, Inc. has 14 years of experience assisting Corporations with excess inventory by structuring the *disposal of excess materials as a charitable contribution* that provides funding to government qualified and approved Nonprofit Organizations. This program may provide certain desirable tax benefits to the generating Corporation on a cost basis valuation, providing for a value per pound significantly greater than the scrap price of the fiber materials. CFR staff will be glad to review this program and option if the generating company has interest understanding this approach.

### **Summary of Material Information needed to consider your excess and scrap materials:**

Product description with specifications and MSDS sheet

Volume per day, week, month, year

Condition and quality of the materials, contamination if any

Packaging

Samples

Originating plant location(s)

Note: If preferred, use materials description form ([Carbon Fiber Materials Description Form](#))

### **Program Development Sequence**

1. Call or write to CFR to initiate your inquiry and schedule a get acquainted visit by phone
2. Present a summary of the excess product / materials to be considered for this program
3. CFR will review the material specs and samples sent, lab testing where required, and then matching to a remanufactured product program.
4. In cases of fibers with specifications we have not matched, we will likely call for a 1000 lbs or so to conduct a processing equipment trial as well as new form materials to test with the product match.
5. CFR would schedule a visit to your plant or office
6. CFR will as quickly as possible confirm a match of the materials
7. Determination of optimum recycling program option for the generating corporation
8. Scheduling of first date of materials disposal program start
9. CFR imports excess carbon fiber materials and scrap from different locations around the world. Once the fiber specifications and fiber forms are confirmed, CFR can determine and confirm its readiness to receive shipments of materials from the generator from any location.

Your questions we will gladly respond to. Send to [info@CarbonFiberRemanufacturing.com](mailto:info@CarbonFiberRemanufacturing.com)