

R&D Tax Credits – U.S. Savings for U.S. Innovation

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Introduction

Enacted in 1981 by the Economic Recovery Tax Act, the United States Credit for Increasing Research Activities¹ [also known as the Research & Experimentation (R&E) or Research & Development (R&D) tax credit] rewards companies for the development or improvement of its products, processes, techniques, formulas, inventions, or software applications².

As a temporary provision of the Internal Revenue Code, the R&D tax credit enjoys bi-partisan support from Republicans and Democrats and is one of the most lobbied tax provisions of the Internal Revenue Code. The credit has expired over a dozen times and is regularly reinstated on a retro-active basis as part of various “tax extenders” packages³.

Over 12,000 taxpayers claimed the U.S. R&D tax credit in 2009⁴ with the manufacturing sector claiming approximately 70% of the \$7.7 billion in R&D tax credits claimed. According to IRS statistics, less than 1% percent of the amount of credit being claimed by manufacturers is attributable to the plastics and rubber manufacturing sector. This makes the R&D tax credit one of the most under-utilized tax savings opportunities for companies in the plastics industry.

The R&D tax credit is a dollar-for-dollar credit against the taxpayer’s federal income tax liability. Taxpayers benefit from the deduction in the year the expenditure is paid or incurred (or subsequent amortization expenditure in the event the taxpayer elects to capitalize its research costs for federal income tax purposes) *and* by claiming the credit⁵.

Approximately 30 states also have incentives for research and development, based upon the federal definition of qualified research. The various state R&D tax credits range from 1.5% to 40% of the eligible research expenditures, with some states requiring taxable income as a prerequisite for utilizing the credit and others refunding any unused credit to the taxpayer irrespective of the existence of taxable income. Each state has its own requirements, with the common theme that the state credit is only eligible for research conducted within the respective state.

Eligible Research Activities & Applicability to the Plastics Sector

The R&D tax credit is calculated based upon the expenditures attributed to a taxpayer’s qualified research activities. Numerous sub-sectors within the plastics industry perform qualified research. For instance, a taxpayer may be trying to develop a newly engineered resin or other polymeric material, while another taxpayer may be trying to improve cycle time related to a specific part. Rather than provide examples of qualified activities for every sub-sector, the following analysis illustrates how a custom processor engages in qualified research.

¹ IRC §41 (The R&D tax credit was originally enacted as IRC 44F, but has been re-designated twice since then).

² P.L. 97-34

³ At the time this article is being written (November 2012), taxpayers were awaiting Congressional renewal of the IRC §41 credit for expenditures paid or incurred after December 31, 2011.

⁴ Tax year 2009 is the last year of data published by the IRS at the time of this article. See also <http://www.irs.gov/uac/SOI-Tax-Stats-Corporation-Research-Credit>.

⁵ Depending upon whether the taxpayer claims the credit on its originally filed income tax return, the taxpayer may be required to reduce its research expenditures by the amount of the credit.

There are four basic requirements to a qualified research activity. The activities outlined below go beyond the laboratory and R&D departments and demonstrate how companies' engineering, quality and production departments engage in or directly support qualified research activities. The following overview discusses the requirements and how these activities apply to a typical plastics processor.

1. Development or Improvement of a Business Component

In order for an activity to qualify, processors must be developing a new business component or improving an existing business component that is held for sale, lease, or license, or used by the taxpayer in its trade or business. Business components are defined as products, processes, techniques, formulas, inventions, or software applications.

Applicability to Plastics Processors:

Generally, custom processors are in the trade or business of manufacturing parts to meet their customers' specifications. In order to do so, they may assist their customers develop alternative part designs to evaluate or improve manufacturability; develop and test new mold designs; experiment with different materials of construction; or invest in automation technology to improve cycle time. Many times, these products or processes qualify as business components and the development and testing of these business components may qualify as a research activity.

2. Eliminating Uncertainty which is Technological in Nature

In order for an activity to qualify, the research must be undertaken for the purpose of eliminating technological uncertainty concerning the development or improvement of a business component.

Uncertainty exists if the information available to the taxpayer does not establish the capability of developing or improving the business component, the methodology of developing or improving the business component, or the appropriate design of the business component.

The information sought must be technological in nature. That is, the process of experimentation to eliminate the technological uncertainty must fundamentally rely upon the principles of physical, biological, engineering, or computer science.

Taxpayers are not required to be seeking information that exceeds, expands, or refines the common knowledge of skilled professionals in the particular field of science or engineering in which the taxpayer is performing the research. That is, taxpayers may rely upon existing engineering principles in order to solve the technological uncertainty. Thus, multiple design alternatives may establish the uncertainty required.

Applicability to Plastics Processors:

Plastics processors are rarely provided with the information necessary to produce a part to specifications. They are provided with a part design, and it's the processor's responsibility to develop a manufacturing process that will produce a part that meets the customers' specifications. The development and testing of this process is regularly the focus of many processors' research activities.

In addition, many processors bear the responsibility of developing, manufacturing, and testing a mold capable of producing the part. It is typical for processors to bear the risk of failure in this process and spend a significant amount of time in the development stage to meet the customers' and internal quality specifications.

Clearly, the process of experimentation employed by processors relies upon the engineering and chemical sciences. Thus, the development of the new designs or improvements to existing designs is technological in nature.

3. Qualified Purpose of Research

In order for a research activity to qualify, the research must relate to new or improved functionality, performance, reliability, or quality.

Applicability to Plastics Processors:

A processor's research efforts often relate to improved functionality, performance, reliability, or quality.

For example, during the development process, a plastics processor may develop numerous hypotheses related to, but not limited to, the following activities:

- Development of alternative part designs to improve manufacturability
- Development of new mold designs with an emphasis on the following:
 - Number of cavities
 - Length or width of runner
 - Gating issues
 - Flashing issues
 - Tolerance considerations
- Development of process control improvements through in-mold sensors
- Development of prototypes or models (including computer-generated models)
- Performance of mold-flow analysis
- Consideration of various ejection alternatives
- Development of processing alternatives with an emphasis on the following:
 - Plastic temperature
 - Flow rates
 - Pressure
 - Cooling rate/time
- Test new resins
- Automation of manufacturing processes
- Development or testing of new concepts or technology
- Implementation of robotics or production control software
- Streamlining or improving production or manufacturing processes to achieve higher standards in quality and productivity
- Performance of certification testing

4. Process of Experimentation

In order for an activity to qualify, a taxpayer must eliminate technological uncertainty by engaging in a process of experimentation. A process of experimentation is an evaluative process and should be capable of evaluating more than one alternative. Treasury regulations define a process of experimentation as modeling, simulation, or systematic trial and error.

Applicability to Plastics Processors:

After hypothesizing one or more of the above developments or improvements, a process of experimentation would commence to determine whether the hypotheses could be proven and integrated into the design. Frequently, this experimentation is not limited to the research of just one of the above alternatives, but extended to several alternatives as decisions related to one development or improvement often lead to a design conflict with another development or improvement.

Frequently, processors rely upon CAD modeling; mold flow simulations; and systematic trial and error, often in the form of prototype (PPAP or First Article) construction and testing. These activities regularly qualify for the R&D tax credit.

In reviewing the four requirements of a qualified research activity, it is apparent that plastic processors engage in qualified research in the course of business operations. Employees across numerous departments may be engaging in or supporting qualified research activities. For instance, the following activities may meet the definition of qualified research activities:

- Developing new product designs
- Improving functionality or reliability of existing products
- Designing new molds or improving transfer molds
- Experimenting with processing variables to improve processes
- Improving manufacturing processes through automation
- Experimenting with new resins
- Performing PPAP or First Article inspections on new parts

It is important to note that while Congress wished to reward companies for investing in research and development, it did not intend on all activities associated with its research to be credit-eligible activities. Therefore, the Internal Revenue Code and its regulations disallow the following activities:

- Research after commercial production;
- Adaptation of an existing business component to a particular customer's requirement or need where the research is not aimed at improving the business component's functionality, quality, performance, or reliability;
- Duplication or reverse engineering of an existing business component;
- Surveys, studies, market research, routine data collection, or routine quality control;
- Research conducted outside of the United States;
- Research in the social sciences, arts, or humanities; and
- Research funded by grants, contracts, or otherwise by another person⁶.

IRC §41 Eligible Research Expenditures

The expenditures eligible for the R&D tax credit are limited to in-house research expenses and contract research expenses.

In house research expenditures include:

- Any wages paid or incurred for the performance of qualified services;
- Any amount paid or incurred for supplies used in the conduct of qualified research; and
- Any amount paid or incurred for the right to use computers in the conduct of qualified research.

Qualified services include employees engaging in, directly supporting, or directly supervising qualified research. For example, an engineer may spend time developing alternative designs for a new product; a production employee may spend time making sample parts to test a mold design; or an engineering manager may review the results of a first article inspection to determine whether a subordinates' design met the required specifications.

Taxpayers that use supplies in the conduct of research may be able to include these amounts in its calculation of qualified research. The supplies must be tangible, used directly in the performance of qualified services, and not capital expenditures. Examples may include: raw materials used to produce prototypes; prototype molds; stereo lithography or 3-D printed parts; experimental resins; and laboratory supplies.

Processors that develop, test, and sell the mold to the customer upon successful production of sample parts, but prior to the start of commercial production, should consider whether raw materials were used in the conduct of research to the develop a new product (the mold). In *TG Missouri Corporation v. Commissioner*, the taxpayer was able to include certain amounts paid to third party toolmakers as supplies used in the conduct of research⁷.

⁶ Amounts payable under any agreement that are contingent on the success of the research and thus considered to be paid for the product or result of the research are not treated as fund[ed]. Treasury regulation §1.41-4A(d)(1).

⁷ *TG Missouri Corporation v. Commissioner*, 133 TC 278

Taxpayers may also include lease payments for the right to use computers for the performance of qualified research. The treasury regulations require, however, that the computer be leased from a third-party from a location other than that of the taxpayer, making this eligible expenditure a rarity.

In addition to in-house research expenditures, taxpayers may include 65% of eligible contract research. Contract research includes payments to third parties for the performance of research on the taxpayer's behalf. The taxpayer must own substantial rights to the research results and must bear the economic risk regardless of whether the research is successful.

Two Methods of Computing the IRC §41 Credit

The Internal Revenue Code allows for two methods of computing the R&D tax credit: the traditional credit and the Alternative Simplified Credit (ASC).

The traditional credit equals 20% of a taxpayer's qualified research expenditures in excess of its base amount. The base amount is the greater of 50% of the current year research expenditures or the product of the average gross receipts from the prior four tax years and the fixed-base percentage. The fixed-base percentage equals the aggregate qualified research expenditures over the aggregate qualified research expenditures during the base period.

To determine the base period for the traditional credit, the taxpayer must first determine whether it is a historic base period company or a start-up company. If the taxpayer incurred qualified research expenditures and gross receipts prior to December 31, 1983 and incurred qualified research expenditures and gross receipts in three out of the five taxable years between 1984 and 1988, the taxpayer is a historic base period company. Historic base period companies' base period includes tax years beginning in tax years 1984 through 1988.

Start-up companies are assigned a fixed-base percentage of 3% for its first five taxable years that the company incurs qualified research and gross receipts. In its sixth year of incurring both qualified research and recognizing gross receipts, the taxpayer phases in its actual qualified research expenditures and gross receipts, locking in its fixed-base percentage in year 11 and thereafter.

At the taxpayer's election⁸, companies may claim the ASC. The ASC is equal to 14% of a taxpayer's qualified research expenditures in excess of its base amount. The base amount is equal to 50% of the average of qualified research expenditures paid or incurred in the prior three years.

The ASC was enacted by Congress in 2006. Prior to the enactment of the ASC, some taxpayers' benefit was minimal if their gross receipts were too large relative to qualified research expenditures, or if they could not document their research expenditures or gross receipts in the base period of 1984-1988.

For some companies, the traditional R&D tax credit results in a larger amount of credit given the difference in the credit rate. These companies likely have the records available to substantiate their activities during the base period, and their gross receipts have not increased as a function of their qualified research expenditures since the base period.

However, for those taxpayers not fitting this fact pattern, the ASC takes gross receipts out of the equation and the base period is calculated using more recent tax years, making it particularly attractive for companies:

- Whose qualified research expenditures have increased significantly;
- Whose qualified research expenditures are relatively low in comparison to their gross receipts;
- Whose gross receipts have grown exponentially in proportion to their qualified research expenditures; or

⁸ Treasury Regulation §1.41-9 requires that an election to claim the Alternative Simplified Credit must be made on an originally filed income tax return, including extensions.

- Who have acquired or disposed of companies or divisions making it difficult to calculate their base period.

While the election to claim the ASC must be made on a timely filed income tax return, including extensions, taxpayers may also revoke the ASC election on an originally filed income tax return, including extensions. By revoking the ASC, the taxpayer reverts back to claiming the traditional R&D tax credit. The ability to elect and revoke the ASC allows taxpayers some flexibility in determining which method results in the greatest amount of credit in each tax year.

A Note on Record-Keeping

In order to substantiate a R&D credit claim, taxpayers must capture the information necessary to prove that qualified research is taking place, while connecting the employees performing the qualified research to the activities themselves.

Further, for employees that perform both qualified and non-qualified services must bifurcate their time between qualified research and time spent on non-qualified services, such as administrative duties, production, and travel time.

Business documents that many taxpayers already prepare as part of their engineering or reporting systems are the best place to begin. Many times, these documents include, but are not limited to, drawings, designs, pictures, notes, emails, and meeting minutes creating nexus to the employees performing the qualified research.

The ideal documentation for plastics manufacturers to maintain includes, but is not limited to, the following:

- The details of the process of experimentation. The IRS often will request the step-by-step process that a taxpayer undertakes during its research. A highly detailed and documented process is best.
- The alternatives that were considered. These alternatives may relate to the capability or methodology of developing the product or process or could consist of design alternatives that were discarded in determining the best option. Taxpayers are encouraged to record both successful and unsuccessful alternatives. For purposes of the R&D credit tracking, unsuccessful alternatives are as significant as the successful alternatives (if not more significant since design uncertainty is evident).
- The results of experimentation. Any reports, notes, or testing results help corroborate the research activities.
- Documents listing employees involved in the research efforts. Documents listing employees that are performing or supervising the research provide excellent nexus to the research activities that are performed.
- The amount of time spent on each research project by person. Calendars, time logs, or time cards provide excellent sources of the employees' qualifying and non-qualifying activities.

By developing documentation procedures to amalgamate with existing engineering documentation, R&D tax credit documentation may be introduced to an organization with little interruption to existing practices.

Utilizing the R&D tax credit

There are two limitations to taxpayers utilizing the R&D tax credit: the income limitation and the alternative minimum tax (AMT). That is, the federal R&D tax credit is not refundable. A taxpayer must have taxable income in order to utilize the R&D tax credit. Further, taxpayers may not offset the AMT, except in certain circumstances. The R&D tax credit is a general business credit, thus carrying with it specific tax attributes. For instance, any unused credit may be carried back one year or forward for twenty years.

It should be noted, however, that the Small Business Jobs Act of 2010 allows eligible small businesses⁹ to offset the AMT in tax years beginning in 2010, and allows unused credit to be carried back up to five tax years, as opposed to a one year carry back period.

Case Study

The following case study illustrates how a custom injection molder has been able to recognize significant tax savings by claiming the R&D tax credit. This processor, located in the Southeastern region of the United States, develops unique manufacturing processes and new molds for multiple new projects each year. The company's sales are approximately \$14 million per year. As part of its business operations, the company's employees developed new part designs, worked to improve manufacturing processes, and designed new molds. The processor employs engineers and other plastics professionals that are responsible for developing the new process and mold designs. The engineering department is supported by the production and quality departments through the testing and validation of its designs. As a result of its research efforts, the company has recognized greater than \$100,000 of federal tax savings for the past three tax years.

Conclusion

The R&D tax credit may provide a competitive edge to companies investing significant resources in the development or improvement of its products or processes. Taxpayers that have not claimed the credit in the past should review prior years' tax returns to determine whether amending its U.S. income tax return is warranted. Taxpayers already claiming the credit should periodically review its credit methodology, documentation supporting the research expenditures, and the underlying activities to ensure it is claiming the proper amount of R&D tax credit. This approach is prudent to ensure that taxpayers are in line with the IRS' documentation requirements, recent court cases, and ever-changing treasury regulations.

⁹ In order to be an eligible small business, the average annual gross receipts for such corporation, partnership, or sole proprietorship for the 3-taxable-year period preceding such taxable year does not exceed \$50,000,000.