

PINNACLE POLYMERS, LLC

NO. 19-CA-310

VERSUS

FIFTH CIRCUIT

ST. JOHN THE BAPTIST PARISH SALES
AND USE TAX OFFICE

COURT OF APPEAL

STATE OF LOUISIANA

ON APPEAL FROM THE
BOARD OF TAX APPEALS
STATE OF LOUISIANA
NO. L00357

March 24, 2021

SUSAN M. CHEHARDY
CHIEF JUDGE

Panel composed of Judges Susan M. Chehardy,
Jude G. Gravois, and Hans J. Liljeberg

AFFIRMED

SMC

JGG

HJL

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CHEHARDY, C.J.

Appellant, Pinnacle Polymers, LLC (“Pinnacle”), seeks review of a 2019 judgment issued by the Louisiana Board of Tax Appeals (the “Board”) in favor of appellee, St. John the Baptist Parish, Sales and Use Tax Office (the “Parish”), as to the amount of sales taxes Pinnacle paid under protest for its purchases of *Avant* ZN 203, and any applicable interest, penalties, and costs thereon, totaling \$1,467,994.01. For the following reasons, we affirm.

Procedural History

On February 13, 2017, the Parish issued Pinnacle a Notice of Assessment of St. John the Baptist Parish Sales and/or Use Taxes and related penalties and interest for the audit period January 1, 2011 through December 31, 2014 (the “Audit Period”) in the amount of \$1,560,673.63. On March 14, 2017, in accordance with La. R.S. 47:337.63, Pinnacle paid under protest the full amount of the taxes assessed by the Parish for the Audit Period, and notified the Parish of its intent to file a petition with the Board seeking recovery.¹

Pinnacle filed a Petition for Refund of Tax Payment Under Protest with the Board on April 3, 2017, wherein it sought a refund of the \$1,560,673.63 in sales taxes that it had paid under protest. In its petition, Pinnacle challenged the Parish’s Assessment on three grounds: (1) Pinnacle’s purchases of *Avant* ZN 203 (“ZN 203”) during the Audit Period in the amount of \$795,735.06 was not subject to sales and use tax based on the applicability of the “further processing” exclusion under La. R.S. 47:301(10)(c)(i)(aa); (2) Pinnacle’s purchase of water during the Audit Period in the amount of \$25,896.94 was exempt from the Parish’s sales and use tax; and (3) Pinnacle’s purchases of various goods and services during the

¹ La. R.S. 47:337.63 provides, in pertinent part, that “[a]ny taxpayer protesting the payment of any amount found due by the collector ... shall remit to the collector the amount due, and at that time give notice of intention to file a petition with the Board of Tax Appeals” See La. R.S. 47:337.63(A)(1)(a).

Audit Period in the amount of \$51,696.97 were also exempt from the Parish's sales and use tax.²

Prior to a hearing before the Board, the parties filed a list of stipulations to which they agreed. These stipulations purportedly resolved, among other things, issues related to the various goods and services items, leaving only Pinnacle's purchases of ZN 203 and water for the Board's determination.

At the evidentiary hearing before the Board on September 20, 2018, Pinnacle provided the testimony of its Vice-President of Operations and plant manager, Pieter Swanepoel; its controller, Tom Lejeune; and its expert witness, Dr. Douglas Klendworth. In response, the Parish presented the testimony of its expert, Dr. Brian Goodall. The Board took the matter under advisement and on January 8, 2019, the Board rendered judgment ruling in favor of both parties, in part, and issued reasons for judgment. Specifically, the Board found in favor of Pinnacle regarding taxes paid for its purchases of water under La. R.S. 47:305(D)(1)(c), and in favor of the Parish finding that Pinnacle's purchases of ZN 203 were not for the purpose of inclusion into its final product, as required by La. R.S. 47:301(10)(c)(i)(aa)(I)(ccc), and thus, were taxable.³ The parties disposed of the remaining issues by stipulation.

During the first week of February 2019, the Parish filed a motion to amend judgment alleging the Board's judgment improperly calculated the amounts owed, and excluded interest and penalties. After addressing the alleged errors, the Board

² Pinnacle was required to pay the Collector \$1,560,673.63 due to the assessment of interest and penalties on these amounts.

³ The "further processing exclusion" relied upon by Pinnacle is set forth in La. R.S. 47:301(10)(c)(i)(aa) and provides:

The term "sale at retail" does not include sale of materials for further processing into articles of tangible property for sale at retail when all of the criteria in Subsubitem (I) of this Subitem are met.

(I)(aaa) The raw materials are a recognizable and identifiable component of the end product.

(bbb) The raw materials are beneficial to the end product.

(ccc) The raw materials are material for further processing, and as such, are purchased for the purpose of inclusion into the end product.

issued an amended judgment on April 1, 2019, ruling in favor of Pinnacle in the amount of \$28,149.67 (relative to its purchases of water, and services stipulated by the parties), and in favor of the Parish in the amount of \$1,467,994.81 (relative to Pinnacle's purchases of ZN 203).

Pinnacle timely moved for an appeal of the Board's judgment on April 25, 2019, pursuant to La. R.S. 47:1434 and La. C.C.P. art. 2123, *et seq.*, which the Board granted on April 30, 2019. The Parish did not appeal the Board's ruling regarding Pinnacle's purchases of water.⁴

FACTS

Pinnacle's business is the manufacture of polypropylene in the form of small, round plastic pellets, which are then sold to Pinnacle's customers. Pinnacle produces polypropylene with varying grades of flexibility, durability, and heat tolerance, which its customers can then use in a wide range of applications, such as packaging, plastic goods, housewares, and industrial grade carpets.

Polypropylene is a polymer, which is a molecule that is made up of several monomers, in this case propylene. The process of converting monomers (propylene) to polymers (polypropylene), is known as "polymerization." According to Pinnacle's plant manager, Pieter Swanepoel, Pinnacle's process of producing polypropylene involves three steps: the reaction phase, the degassing phase, and the extrusion phase.

⁴ Once the appellate record was lodged and a briefing schedule was issued, it became apparent that the record was incomplete, as it was missing portions of the cross-examination testimony of Pinnacle's expert witness, Dr. Klendworth. Consequently, this Court remanded the matter to the Board for the limited purpose of rehearing and transcribing the supplemental cross-examination and redirect of Dr. Klendworth, which occurred on October 14, 2020.

Reaction Phase

The polymerization process begins by pumping a slurry of the catalyst, *Avant* ZN 203,⁵ with inert oil into a reactor through an injection tube, which places it inside of a fluidized bed reactor known as a “polymer bed.” Gas moves through the bed to keep the polymer suspended, at which point the catalyst and propylene are mixed together and exposed to heat and pressure. Pinnacle’s catalyst system contains ZN 203, tri-ethyl aluminum (“TEA1,” a cocatalyst), and D donor, which are needed to initiate a reaction. These three components are introduced during the reaction phase, along with other feedstock (or raw materials, such as propylene, and hydrogen), in varying ratios depending upon the specific characteristics sought to be achieved in its end product. By controlling the balance of monomers, ZN 203, and other chemicals used in the reaction phase, Pinnacle can control the size and shape of the polymers it creates, in addition to the molecular structure and weight of the end product, which in turn determines the end product’s strength, flexibility, durability, and heat tolerance.⁶

Evidence introduced at the hearing established that ZN 203 is comprised by weight of 50% magnesium chloride, titanium tetrachloride, and an internal donor (a diether component) as co-catalysts, and 50% pre-polymerized polypropylene. Mr. Swanepoel explained that during the reaction phase, when all of the materials, including ZN 203, are fed into the reactor, the reaction is initiated causing monomers to combine together to form polymer chains that then grow to the desired length. As the polymer grows, “it intertwines like spaghetti[,] with the

⁵ The ZN 203 catalyst that Pinnacle uses in its polymerization process derives its name from Karl Ziegler and Giulio Natta, the two scientists credited with developing the first-generation catalyst used in the polymerization reaction of converting monomers to polymers. Pinnacle purchases the ZN 203 from LyondellBasell, who sells it commercially under the name of Equistar. A “slurry” is a mixture of solids suspended in liquid. Here, the ZN 203 is suspended in an inert oil. The oil is meant to be a delivery assister to facilitate pumping the ZN 203 catalyst into the reactor.

⁶ According to Pinnacle’s expert, Dr. Douglas Klendworth, in Pinnacle’s manufacturing process, ZN 203 participates in the chemical reaction as a reactant, as do propylene and hydrogen, because there are chemical bonds being formed to create polymer. A “reactant” is something that enters into a chemical reaction where bonds are formed and/or broken.

catalyst uniformly interspersed throughout.” There is a “chain termination” process where additional hydrogen is added, which reacts to determine the specific length of the polymer chain. The chain then separates and a new polymer chain commences to grow; this is a continuous process such that every chain growth takes approximately two seconds. Pinnacle’s expert, Dr. Klendworth,⁷ described the polymer chains as long strings of molecules, connected end to end, that wrap around each other to form tiny lumps of plastic. He compared this molecular structure to a bale of straw, and compared each individual polymer chain to a single piece of straw. Hydrogen can be found at the “end of every chain in Pinnacle’s process.”⁸ ZN 203 does not contain hydrogen. When polypropylene polymer is removed from the reactor, it has a “washing powder type of consistency.” Once the reaction phase is complete, polymer is created and the ZN 203 catalyst has completed its job.

Dr. Klendworth testified that ZN 203 is pre-polymerized by its manufacturer, LyondellBasell, prior to being shipped in specialized drums to Pinnacle. Pre-polymerized means that the “reaction was initially started” by the manufacturer. Dr. Klendworth explained that pre-polymerization entails exposing a portion of ZN 203 to a small amount of TEA1. ZN 203 reacts with TEA1 by “exchanging” a chloride molecule for a carbon molecule. The carbon molecule then bonds with titanium in the ZN 203, which in turn, is exposed to a metered amount of propylene to trigger a polymerization reaction, which is capable of being fully polymerized at a later date. These nascent polymers are dispersed throughout the ZN 203 and provide the first building block for the ultimate

⁷ Dr. Klendworth was accepted as an expert in inorganic chemistry, the working of Ziegler-Natta catalysts and catalysis, and the polymerization of propylene.

⁸ Hydrogen molecules are found at the end of each polymer chain, except for the first chain, where the pre-polymerized polypropylene present in the ZN 203 is organically linked in the first molecule formed, which is part of the 72 parts per million of the pre-polymerized polypropylene found in the final product, discussed *infra*.

polymerization, which occurs when Pinnacle later pumps the pre-polymerized ZN 203 into the reactor. The pre-polymerized polypropylene component of ZN 203 provides greater stability and control of the reaction, helps control the size and shape of the polymer chains, increases efficiency, and prevents explosivity during the reaction phase.⁹ By the end of the reaction phase, the pre-polymerized polymer component of ZN 203 is intermingled with the polymer chain molecules and is interspersed throughout the final product—polypropylene polymer—that Pinnacle produces.

According to Mr. Swanepoel, Pinnacle specifically chooses to use the ZN 203 catalyst because it has a narrow molecular structure, which enables Pinnacle to imbue polymers with a wide range of characteristics during the reaction phase of its production process (a second set of characteristics of its end product is developed during the extrusion phase). Mr. Swanepoel emphasized that it is the specific characteristics and performance of the end product that customers desire (such as higher heat deflection temperatures, better stiffness, and impact balance, which he testified the ZN 203 provides during the reaction phase), rather than the product's particular molecular structure or composition. In short, Mr. Swanepoel stated that Pinnacle's customers demand polypropylene polymers with specific degrees of strength, flexibility, and durability. Pinnacle's customers do not demand polypropylene polymers with specific amounts of titanium, chlorides, or other chemicals.

Degassing Phase

After the reaction phase is complete, the polymer is removed from the reactor and transferred to the degassing part of Pinnacle's production process. Mr. Swanepoel explained that ZN 203 is a catalyst, which speeds up the reaction that

⁹ According to Mr. Swanepoel, if the reaction were to occur too quickly, the catalyst shatters and makes a lot of "fines," which can lead to gels, or unwanted polymer chains, in the product.

occurs in the reactor during the reaction phase, but unlike a processed chemical, ZN 203 is not completely consumed—it leaves behind trace elemental catalyst residues in amounts of “parts-per-million.” He stated that during the degassing phase, the polymer is hydrolyzed, or treated with steam, in order to deactivate or “kill” the ZN 203 catalyst residues (the inorganic half of ZN 203—chloride, magnesium, or titanium). By hydrolyzing the catalyst residue, this prevents any chlorine, magnesium, or titanium residues from causing further reactions in the finished product, which, if not rendered inert, could result in discoloration or corrosion damage to the polymer after manufacture is complete. The experts agreed that, after being neutralized by steam, the catalyst residues are of no benefit to Pinnacle’s end product, are harmless, and too expensive to remove.

Approximately 144 pounds of ZN 203 (of which 72 pounds is pre-polymerized polypropylene and the other half is catalyst), are used to create approximately 1,000,000 pounds of polypropylene. The ZN 203 catalyst residue that remains in Pinnacle’s end product can be measured in parts per million and is hydrolyzed, or rendered inert, by steam. The parties’ experts agreed that the titanium component of ZN 203, which is the polymer’s only source of titanium, is recognizable and identifiable (though hydrolyzed) in Pinnacle’s finished product by using x-ray fluorescence. The experts further agreed that, while the other components of the ZN 203 catalyst, such as magnesium and chloride, are identifiable in Pinnacle’s finished product, they cannot be traced back specifically to ZN 203, because there are other sources of these chemicals introduced during Pinnacle’s manufacturing process. Similarly, the pre-polymerized polypropylene component of ZN 203 becomes indistinguishable from the other polypropylene molecules in the end product. The experts also agreed that each million pounds of polypropylene pellets produced by Pinnacle contains approximately 72 pounds of pre-polymerized polypropylene that is derived from the ZN 203 used to create it.

Put another way, about 72 parts per million of polypropylene in Pinnacle's end product is derived from the pre-polymerized polypropylene component of ZN 203. According to Pinnacle's own expert, in terms of identifying those pre-polymerized polypropylene molecules, "it's a straw in a bale of straw, but it's there."

Dr. Klendworth explained that ZN 203 is a "fifth generation" catalyst product that is used to initiate a chemical reaction to convert a monomer, *i.e.*, propylene, into to polymer, *i.e.*, polypropylene. He stated that with regards to the first, second and third generation catalysts, the catalyst residue could not be deactivated with steam, but rather, often required an expensive "de-ashing" process during production to remove any harmful catalyst residue from the polypropylene polymer. With the advent of fourth generation catalysts, the need for de-ashing was eliminated, as deactivating the catalyst residue could be accomplished using less expensive procedures. Developers then began to focus on creating a catalyst that was not only inexpensive to deactivate, but which also added some value to the finished product, resulting in the development of fifth generation catalysts, such as ZN 203. Fifth generation catalysts, which are magnesium supported catalysts, increased the catalysts' reactivity, thereby reducing the catalyst residues to such insignificant amounts that removing the residue was no longer necessary or cost-efficient. Additionally, fifth generation catalysts, such as ZN 203, have the added benefit of narrower molecular structure and greater variation in molecular weight distribution.¹⁰

Extrusion Phase

In the final extrusion phase of Pinnacle's manufacturing process, the polypropylene polymer, which has the consistency of a "washing powder," gets

¹⁰ The ZN 203 catalyst is a high-activity catalyst that, in terms of molecular weight distribution, helps control the average length of the polymer chains in order to produce a "tighter polymer molecule" that provides certain characteristics of the polymer produced during the reaction phase. According to Dr. Klendworth, part of the role of the ZN 203 catalyst is to affect the molecular weight distribution in Pinnacle's end product.

melted and blended. The powder is put into an extruder, which contains a melting section and a mixing section where the polymer gets well mixed with any additives that are introduced. It is during the extrusion phase that Pinnacle is able to further manipulate and refine the characteristics of the end product according to its customer's specifications. The polymer then moves through a die plate, "much like a meat grinder with blades on it," which occurs in an underwater application. Water is used to cool the polymer so that it can be cut and then shaped into round pellets. The pellets are then dewatered and dried. After extrusion, the pellets are placed into Pinnacle's packaging silos before being loaded onto rail cars for delivery.

Pinnacle contends that ZN 203 is vital to its manufacturing of the various grades of polypropylene polymers it produces. Pinnacle asserts that it should not be required to pay sales tax on its purchases of ZN 203, because not only is ZN 203 purchased by Pinnacle for the purpose of "react[ing] with all [the] other reactants" during the reaction phase of Pinnacle's manufacturing process, but ZN 203 is also purchased by Pinnacle for further processing, or so that it will "be in the final products" that Pinnacle sells to its customers.

To the contrary, the Parish contends that Pinnacle's purchases of ZN 203 are not excluded from taxation because Pinnacle, not its customers, is the ultimate consumer of the ZN 203 it purchases. The Parish claims that the purpose for which Pinnacle purchases the ZN 203 "pre-polymerized catalyst [is] to efficiently and safely catalyze, in the reaction phase of production, its monomer feedstock or raw material, propylene, into a polymer end product." According to the Parish, Pinnacle does not purchase ZN 203 for purposes of further processing the pre-polymerized polypropylene component into its end product, but rather, the trace elements that end up in Pinnacle's final product are merely an incidental benefit.

ISSUE PRESENTED FOR REVIEW

While Pinnacle sets forth four assignments of error, the sole issue for this Court's review is whether the *Avant* ZN 203 purchases by Pinnacle to manufacture its polypropylene pellets are excluded from sales and use tax under the "further processing exclusion" set forth in La. R.S. 47:301(10)(c)(i)(aa). Based upon the evidence and testimony presented at the hearing, the Board determined that the "further processing exclusion" does not apply to relieve Pinnacle from sales tax liability on its purchases of ZN 203. We agree.

STANDARDS OF APPELLATE REVIEW

Judicial review of a decision of the Board of Tax Appeals is rendered upon the record as developed in proceedings before the Board, is limited to the facts on the record, and to questions of law. A decision of the Board will not be reversed on appeal absent a finding that the Board (1) failed to correctly apply the law and adhere to procedural standards or (2) that the Board's findings of fact are manifestly erroneous in view of the evidence on the entire record. *See International Paper, Inc. v. Bridges*, 07-1151 (La. 1/16/08), 972 So.2d 1121, 1127-28; *St. Pierre's Fabrication and Welding, Inc. v. McNamara*, 495 So.2d 1295, 1298 (La. 1986); *Falco Lime, Inc. v. Kennedy*, 99-189 (La. App. 5 Cir. 7/27/99), 739 So.2d 953, 955; *Ferrara v. Secretary, Dept. of Revenue and Taxation, State of La.*, 96-806 (La. App. 5 Cir. 1/28/97), 688 So.2d 147, 148. *See also* La. R.S. 47:1435.

Here, if we find that the Board utilized the appropriate laws and procedures in reaching its decision, we must then determine, in view of the evidence on the entire record, whether the Board was manifestly erroneous in reaching its conclusion that Pinnacle's purchases of ZN 203 were not for purposes of inclusion in its final product, and therefore, should not be excluded from the sales and use tax provisions. If the Board has correctly applied the law and adhered to correct

procedural standards, and its findings are not manifestly erroneous, its judgment should be affirmed. *See Int'l Paper*, 972 So.2d at 1127-28; *Falco Lime*, 739 So.2d at 955; *Ferrara*, 688 So.2d at 148.

LEGAL ANALYSIS

A manufacturer, like any consumer, is taxed on items of tangible personal property that it purchases and uses in manufacturing its product, pursuant to La. R.S. 47:302(A), which states, in pertinent part:

There is hereby levied a tax upon sale at retail, the use, the consumption, the distribution, and the storage for use of consumption in this state, of each item or article of tangible personal property as defined herein

Tangible personal property is that which is otherwise perceptible to the senses. La. R.S. 47:301(16)(a). “Sale at retail” is defined in La. R.S. 47:301(10)(a)(i) as a “sale to a consumer or to any other person or for any purpose other than for resale as tangible personal property” Generally, items that are purchased for the purpose of reselling them in the open market are not taxed until they are sold at retail to the end consumer. A manufacturer may exclude a raw material from the sales and use tax obligation when three specific criteria are met:

- The raw materials become a recognizable and identifiable component of the end product.
- The raw materials are beneficial to the end product.
- The raw materials are material for further processing, and as such, are purchased for the purpose of inclusion into the end product.

La. R.S. 47:301(10)(c)(i)(aa)(I)(aaa)-(ccc).

This exclusion is known as the “further processing exclusion” under which Pinnacle claims that its purchases of ZN 203 during the Audit Period qualify for tax exclusion because the material was used in its process of manufacturing polypropylene. The “further processing exclusion” was designed to eliminate the

tax on the sale of a material purchased for further processing into an article of tangible property, and to place the tax on the ultimate consumer when the finished product is sold. See *Bridges v. Nelson Indus. Steam Co.*, 15-1439 (La. 5/3/16), 190 So.3d 276, 280 (citing *Int'l Paper*, 972 So.2d at 1133). The “further processing” provision is an exclusion from sales tax, rather than an exemption, and thus is to be liberally construed in favor of the taxpayer. *Id.* at 281; *Harrah's Bossier City Inv. Co., LLC v. Bridges*, 09-1916 (La. 5/11/10), 41 So.3d 438.

The Board concluded that because trace amounts of ZN 203 were recognizable and identifiable components of Pinnacle's end product, Pinnacle's purchase of ZN 203 satisfied the first criteria. The Parish has not appealed this finding. The parties stipulated as to the second criteria of the three-pronged test; that is, that Pinnacle's end product derived some benefit from ZN 203. Thus, the crux of the matter before us lies in the third criteria, which seeks to ascertain whether the raw materials were purchased by Pinnacle *for the purpose of inclusion in its end product*.

Although recognizing that inclusion in the final product need not be the *primary* purpose for which the materials were purchased, based on the evidence and testimony presented at the hearing regarding “the chemical make-up and the physical reactions at play in [Pinnacle's] manufacturing process[,]” the Board found that Pinnacle's purchase of ZN 203 was not for purposes of inclusion in the polypropylene pellets it manufactures. The Parish frames this as a fact to be believed or rejected. Pinnacle, however, contends that the BTA improperly employed a more restrictive “purpose test” that, essentially, interdicted the fact-finding process, such that the Board's finding regarding Pinnacle's purchases of ZN 203 was the result of an improper legal analysis.

Before we can consider whether the Board's findings were manifestly erroneous, we must turn our attention to the applicable law.

Prior Jurisprudential Analyses of the “Further Processing Exclusion”

Prior to 2016, the “further processing exclusion” provided, in pertinent part:

The term “sale at retail” does not include sale of materials for further processing into articles of tangible personal property for sale at retail.

The exclusion was first analyzed by the Supreme Court in *Traigle v. PPG Industries*, 332 So.2d 777 (La. 1976), wherein the Court recognized a “purpose” requirement, distinguishing those materials which were purchased for “processing ‘into’ the finished article” from those materials purchased “only to be used in the process of producing the manufactured product for sale.” *Traigle*, 332 So.2d at 781. At issue in *Traigle* was whether the purchase of graphite blades utilized in the manufacture of chlorine was excluded from taxation under the sales and use tax provisions. The manufacturer claimed that its purchase of graphite blades used to make anodes were excluded from taxation because carbon residue from the anodes was found in the final chlorine product. *Id.* at 780. In recognizing the purpose of the “further processing exclusion”—which is to place the tax burden on the ultimate consumer—the Court considered whether the manufacturer, or the manufacturer’s customer, was the ultimate consumer of the graphite blades. *Id.* at 779.

After thoroughly reviewing the manufacturer’s process of chlorine production,¹¹ the Court determined that the manufacturer was the ultimate consumer of the graphite anodes because, even though “waste carbon dioxides” from the graphite remained in the final product, the residue constituted “waste materials in the chemical reaction, the purpose of which was to produce chlorine

¹¹ Chlorine is produced from salt water brine by an electrolytic process. Vulcan used graphite blades to make anodes so that electricity could pass through a salt water brine in such a way as to break down the brine into its component parts (chlorine, hydrogen, and caustic soda, all saleable products). *See Traigle*, 332 So.2d at 779. During the electrolytic process, chlorine (a pure element) escapes as a gas. Mingled with it is a small residue of carbon monoxide and carbon dioxide, about 1.5 to 2 percent of the total volume. Approximately sixty percent of the original graphite anodes remained in the final product, the removal of which was not economically feasible. *Id.* at 780.

(not carbon oxides) for sale at retail.” *Id.* at 782. Specifically, the Court found that the inclusion of the waste residue from the graphite into the final product resulted from an unintended (although unavoidable) inefficiency of the manufacturing process, and was in the nature of an “impurity rather than an integral part” of the finished product. *Id.* at 781. Thus, the *Traigle* Court held that the graphite blades were taxable to the manufacturer because they were not purchased for further processing into chlorine. *See Int’l Paper*, 972 So.2d at 1132.

A few years later, in *Vulcan Foundry, Inc. v. McNamara*, 414 So.2d 1193 (La. 1981), the Supreme Court reiterated the “purpose” factor in the test for determining the ultimate consumer of the raw material. In *Vulcan*, the manufacturer produced manhole covers, drain grates, and other municipal castings made of iron. The product standards required that the iron contain between 3.10 and 3.30 percent of carbon by weight, which meant that, depending on how deficient the scrap iron was, carbon might have to be added during processing to meet the requirements. *Id.*, 414 So.2d at 1198. As a heat source for melting the scrap iron, Vulcan used coke, a coal derivative, which gives off carbon as it burns, and added necessary, though small, quantities of carbon to the iron. The manufacturer placed alternating layers of scrap iron and coke into a cylindrical structure (*i.e.*, a cupola) for heating. The molten iron would then be drained from the bottom of the cupola and poured into the casting molds. Relying on the testimony of a metallurgist, a chemist, and Vulcan’s general manager, the Court determined that Vulcan’s use of coke in its manufacturing process resulted in a net increase of approximately .046 percent (or less than one-half of one percent) of the 3.2 percent carbon present in the final product. *Id.* at 1199.

Vulcan claimed that its purchase of coke was excluded from taxation because coke—a raw material primarily composed of carbon—while used in the manufacturing process, was a key and beneficial component of the final iron

products Vulcan produced. *Id.* at 1198. The Supreme Court disagreed. Although the *Vulcan* Court recognized that the presence of carbon from the coke became an identifiable and beneficial component of the iron products that Vulcan manufactured, it stated that “the proper inquiry, however, is the *purpose for which the coke is bought.*” *Id.* at 1198 (emphasis added). After considering Vulcan’s manufacturing process, the *Vulcan* Court held:

It is clear from the evidence in this case that coke is purchased for the purpose of heating the scrap iron; the small amount of carbon in the finished product is incidental. The fact that using coke as a fuel has a beneficial side effect does not change the purpose for which it is bought. Accordingly, we conclude that Vulcan’s purchase of coke is as a “consumer” for a “purpose other than for resale,” that is, for its use as a heat source to melt scrap iron and not for further processing into an article of tangible property for sale at retail.

Id. at 1199. The “further processing exclusion” did not apply to exclude Vulcan’s purchase of coke from taxation because the coke was purchased as an efficient heating source, not for further processing into the iron products Vulcan manufactured for sale at retail. *Id.*

Following the *Vulcan* decision, the Louisiana Department of Revenue (“DOR”) promulgated an administrative regulation to provide guidance on the meaning of the “further processing exclusion.” La. Admin. Code, Title 61, Part I, § 4301, *Retail Sale or Sale at Retail* (d) provides:

Sale of materials for further processing into articles of tangible personal property for subsequent sale at retail do no constitute retail sales. This exemption does not cover materials which are used in any process by which tangible personal property is produced, but only those materials which themselves are further processed into tangible personal property. Whether materials are further processed or simply used in the processing activity will depend entirely upon an analysis of the end product. Although any particular materials may be fully used,

consumed, absorbed, dissipated or otherwise completely disappear during processing, if it does not become a recognizable and identifiable component which is of some benefit to the end product, it is not exempt under this provision. The fact that a material remained as a recognizable component of an end product by accident because the cost of removal from the end product was prohibitive or for any other reason, if it does not benefit the property by its presence, it was not material for further processing and the sale is not exempt under this provision.

From this regulation, the “three-pronged test” (now codified in La. R.S. 47:301(10)(c)(i)(aa)(I)(aaa)-(ccc)) for determining the taxability of those materials purchased for further processing was developed, and formed the basis for the Supreme Court’s 2008 decision in *International Paper*. *Int’l Paper*, 972 So.2d at 1129.

In *International Paper*, at issue was whether chemicals purchased by the manufacturer for use in its production of white paper products were excluded from taxation under the sales and use tax provisions. The manufacturer, IP, converted raw timber and wood chips into pulp for the ultimate production of white paper products. Once converted, lignin remained in the pulp, leaving a brown/tan color that was unusable for the grades of paper that IP produced. *Id.* at 1124. A small percentage of lignin must remain in the pulp for the paper to be usable. *Id.* In order to turn the brown pulp white, IP employed a “decolorization” or “bleaching” phase during its manufacturing process using three chemicals: sodium chlorate, hydrogen peroxide, and elemental oxygen, which are oxidizing agents. *Id.* Oxygen atoms derived from the bleaching chemicals would “break away” from the original compounds and recombine or bond with the molecular structure of the pulp, particularly the lignin molecules, during the bleaching process which turned the pulp a white color. The incorporation of the oxygen atoms derived from the bleaching chemicals into the molecular structure of the pulp, not only gave the

pulp its white color, but also improved the quality of the pulp making it suitable for manufacture of the types and grades of paper IP desired to produce.

Applying the analysis set forth in *Traigle, Vulcan*, and the DOR's regulation, LAC 61:I:4301(d), the Board issued a decision finding that IP's purchase of the three chemicals was excluded from taxation, stating:

[I]n order to be "material for further processing" as contemplated by the [La. R.S. 47:301(10)(c)(i)], the raw materials or their component molecular parts must meet three criteria: (1) they must be of benefit to the end product; (2) they must be a recognizable and identifiable component of the end product; and (3) they must have been purchased for the purpose of reprocessing into the end product.

Int'l Paper, 972 So.2d at 1125. After considering IP's manufacturing process, the Board found that IP had purchased the chemicals to function as a source of oxygen needed in the bleaching process for creation of its white paper products. The Board also found that a significant amount of the oxygen derived from the bleaching chemicals was not only recognizable and identifiable in the resulting bleached pulp, but that the oxygen from the chemicals was also beneficial to the quality of bleached pulp. Having determined that IP's purchase of the chemicals was for further processing which met all three prongs of the test, the Board found that the sales tax exclusion applied. *Id.* at 1126.

The district court affirmed, finding that the Board's factual determinations were not manifestly erroneous. *Id.* The Second Circuit, however, reversed, finding that IP failed to show that its "primary" purpose for purchasing the oxidizing agents was for further processing into its end product. *See International Paper, Inc. v. Bridges*, 42,023 (La. App. 2 Cir. 4/4/07), 954 So.2d 321, 329-34. The appellate court observed that "[a]lthough the chemical reactions in the process [of bleaching the paper] involve adding oxygen atoms whose origins can be traced to the chemicals or processes in question, the purpose of the chemicals is to

process the lignin in the pulp for paper, not to incorporate raw materials [the chemicals] into the paper product.” *Id.*

After examining its prior jurisprudence in *Traigle* and *Vulcan*, and considering the DOR’s administrative rule addressing the “further processing exclusion,” the Supreme Court reversed the appellate court, reinstated the Board’s decision, and formulated the “test for determining which raw materials, purchased for the further processing of final products for resale, are excluded from the sales and tax provisions.” *Int’l Paper*, 972 So.2d at 1136. The *International Paper* Court held that raw materials that are “further processed” into end products are excluded from sales and use taxation when: “(1) the raw materials become recognizable and identifiable components of the end products; (2) the raw materials are beneficial to the end products; and (3) the raw materials are material for further processing, and as such, are purchased with the purpose of inclusion in the end products.” *Id.*

In formulating this test, the Supreme Court expressly rejected the Second Circuit’s use of a “primary purpose” test, finding that it was an improper expansion of the Court’s prior holdings in *Traigle*, *supra*, and *Vulcan*, *supra*. The Court did *not* overrule its holdings in *Traigle* and *Vulcan*, however, stating that neither case “suggested that a ‘primary’ purpose was required,” but rather, “both the *Traigle* and *Vulcan* Courts recognized the *necessity* of a ‘purpose’ test.” *Id.* at 1135 [emphasis added].

The Supreme Court last addressed the “further processing exclusion” in 2016, in *Bridges v. Nelson Indus. Steam Co.*, *supra*. Nelson Industrial Steam Company (“NISCO”) produces electricity by burning petroleum-coke (“petcoke”) to create steam that turns turbines to generate electricity for its own use and for resale. The steam generated is also a product for resale. In order to meet the Environmental Protection Agency regulations when burning petcoke, NISCO must

mix limestone with the petcoke, thereby limiting the production of sulfur into the atmosphere. The ash produced by this chemical reaction is also an end product that NISCO sells for retail. NISCO's plant was designed with all three products in mind as revenue producing products in its overall operation. NISCO claimed that its purchase of limestone was for the dual purpose of inhibiting sulfur emissions in its production of electricity *and* for producing ash. In light of the limestone being further processed into ash, NISCO averred that its purchase of this raw material was subject to the "further processing exclusion" and, thus, untaxable. *NISCO*, 190 So.3d at 277-278. The DOR and the Calcasieu Parish School System ("tax collectors"), who acknowledged that sales and use taxes had not been collected on NISCO's purchases of limestone for a number of years, argued that the limestone was taxable and not subject to any exclusion. *Id.* at 278.

In holding that the "further processing exclusion" did not apply to NISCO's purchase of limestone, the trial court found that NISCO's process for producing electricity and steam requires the use of limestone, which results in the "unavoidable" production of ash (an "incidental byproduct"), and that none of the component parts of limestone could be detected in either the electricity or steam that NISCO produces. *Id.* The appellate court affirmed, emphasizing that "ash" is an "incidental byproduct" and that the "primary product" NISCO produces for sale at retail is electricity. *Id.*

The Supreme Court reversed, finding that the lower courts had committed legal error in "narrowing their analysis solely to the end product of electricity and not considering the end product of ash, thereby erroneously interjecting a "primary product" or "business purpose" test, "which is not rooted in any statutory, regulatory, or jurisprudential authority." *Id.* at 279. The *NISCO* Court also found that the lower courts had imposed the "primary purpose" test previously rejected in *International Paper*. *Id.* In considering whether the "further processing

exclusion” applied to NISCO’s purchase of limestone, the Court held that “the end product is the starting point of the analysis.” *Id.* at 281. Both of NISCO’s products—the primary electricity product and the ash byproduct—had to be separately analyzed under the *International Paper* three-pronged test to determine the applicability of the “further processing exclusion.” *Id.* at 284. After doing so, the Court found that NISCO’s production of ash satisfied all three prongs, as the ash produced was an intentional, planned, byproduct/end product of NISCO’s overall manufacturing operation, that NISCO had purchased equipment specifically designed for the production of ash, and thus, the limestone used to produce it was excluded from sales and use tax. *Id.* at 285.

In addition to these Supreme Court cases, there are two appellate court cases involving the “further processing exclusion” that merit discussion: *Exxon Corp. v. Schofield*, 583 So.2d 1195 (La. App. 1 Cir. 1991), *writ denied*, 588 So.2d 103 (La. 1991), and *Graphic Packaging, Intern., Inc. v. Lewis*, 50,371 (La. App. 2 Cir. 2/3/16), 187 So.3d 499. At issue in *Exxon* was whether the manufacturer’s purchases of certain initiators and chain transfer agents used to produce polyethylene pellets were excluded from taxation under the “further processing exclusion.” *Exxon*, 583 So.2d at 1196. In its polymerization process, rather than using a catalyst (such as ZN 203) to convert monomers, ethylene, into polymers, polyethylene, Exxon utilized a process involving “free radicals.” *Id.*¹² *Every single polymer chain created* in production of the pellets contained elements of the initiators and chain transfer agents. After closely examining Exxon’s

¹² Exxon’s polymerization process involved three chemical steps. In the first stage (the “chain initiation stage”), after ethylene was introduced, certain chemicals or chain initiators were added and then heated, causing the initiators to break into fragments, which produced free radicals. In the second stage, the heated ethylene would react with the free radicals and form another radical. The reactions continued down a “chain” until two radicals reacted with themselves. The final stage (the “chain termination” stage), occurred when two chains came together to form a stable bond, with initiator fragments on both ends. The end result was a “macromolecule.” *Exxon*, 583 So.2d at 1196-97. Other chemicals called “chain transfer agents,” which caused certain molecules added at the bottom of the chain to be transferred to another molecule, making two molecules instead of one, resulting in lower molecular weight. Each pellet produced contained a quadrillion of the chains or macromolecules. *Id.*

polymerization process, and finding that elements of the initiators and chain transfer agents were chemically linked to the final product, were an essential component of the end product, and affected the specific properties of the pellets produced, the court determined that the “further processing exclusion” applied. *Id.* at 1198.

Similarly, in *Graphic Packaging, supra*, at issue was whether raw materials (caustic soda, sodium, and sulfur) were purchased by GPI for further processing in its production of paperboard products and, thus, subject to the “further processing exclusion.” In determining whether the third prong (or the “purpose” prong) of the *International Paper* test was satisfied, the court stated that “the pertinent inquiry is whether the chemicals were purchased for the purpose of incorporation or inclusion in the end product, *not* whether they were purchased for achieving some specific benefit in the end product.” *Graphic Packaging*, 187 So.3d at 505-06 (emphasis supplied). The trial court found that GPI’s manufacturing process was specifically designed so that a certain amount of the chemicals used remained in its end product, and if they were removed, the benefits achieved (*i.e.*, mass, conductivity, sizing, and strength) in the end product would no longer exist. *Id.* at 503. The trial court held that GPI’s purchase of raw materials met the purpose prong. *Id.*

On appeal, the tax collector argued that GPI failed to satisfy the purpose prong of the “further processing exclusion” because it failed to show that “it purchased the chemicals for the purpose of achieving conductivity and additional mass in the end products.” *Id.* at 505. In rejecting that argument and affirming that the “further processing exclusion” applied, the Second Circuit found that the tax collector was “improperly conflating the benefit and purpose prongs, perhaps in an effort to circumvent the rejection of the ‘primary purpose’ test” in *International Paper. Id.*

In 2016, the Legislature amended La. R.S. 47:301(10)(c)(i)(aa), the former “further processing exclusion,” by Act 3 of the 2016 Second Extraordinary Session. As previously mentioned, the current provision provides, in pertinent part:

(10)

(c)(i)(aa) The term “sale at retail” does not include sale of materials for further processing into articles of tangible personal property for sale at retail when all of the criteria in Subsubitem (I) of this Subitem are met.

(I)(aaa) The raw materials become a recognizable and identifiable component of the end product.

(bbb) The raw materials are beneficial to the end product.

(ccc) The raw materials are material for further processing, and as such, are purchased for the purpose of inclusion into the end product.

The amendment redefined “sale at retail” and added subitem (I) parts (aaa), (bbb) and (ccc), thereby incorporating into the statute the three-pronged test enunciated in *International Paper*, which decision reaffirmed the Supreme Court’s prior rulings in *Traigle* and *Vulcan*, and was applied by it in *NISCO*. The addition of subitem (I) parts (aaa), (bbb) and (ccc) to the statute is merely a codification of the prior jurisprudence that makes the *International Paper* three-pronged test the statutory test for determining whether or not materials used in further processing are excluded from sales and use taxation. Section 2 of Act 3 provides that the amendment was intended to clarify the original intent and application of La. R.S. 47:301(10)(c)(i)(aa). The new statutory definition of “sale at retail” enacted by Act 3 became effective on June 23, 2016, and was expressly made retroactive and applicable to all refund claims submitted or assessments of additional taxes due which were filed on or after the effective date of the Act. Here, the Parish issued

its assessment to Pinnacle on February 13, 2017, after the effective date of the newly enacted statute.

With these legal principles in mind, we now turn to examine whether the Board properly applied them to Pinnacle’s purchases of ZN 203.

Pinnacle’s Purchases of ZN 203 and the Further Processing Exclusion

Prior to analyzing whether Pinnacle purchased ZN 203 for the purpose of inclusion in its final product, the Board expressly recognized that in order to satisfy the third prong of the “further processing exclusion,” inclusion of ZN 203 in its final product need not have been the *primary* purpose for which Pinnacle purchased ZN 203 for use in its manufacturing process. As directed by the Supreme Court in *NISCO*, 190 So.3d at 282, the Board began its analysis with Pinnacle’s end product—polypropylene pellets—and looked at the product’s chemical make-up and the physical reactions at play in Pinnacle’s process to manufacture it. In its written reasons for judgment, the Board concluded that the “further processing exclusion” does not apply to Pinnacle’s purchases of ZN 203, because the testimony and evidence *did not* support a finding that Pinnacle purchased ZN 203 for the purpose of inclusion in its final product:

[Pinnacle] argues that *Exxon Corp. v Schoefield*, 583 So.2d 1195, 1196 (La. Ct. App. 1991), *writ denied*, 588 So.2d 103 (La. 1991), provides instructive guidance for this case. The relevant dispute in *Exxon* was over the taxability of “initiators and chain transfer agents” under the further processing exclusion. *Exxon*, 588 So.2d 1196.

On appeal, the First Circuit defined the scope of the further processing exclusion in accordance with the holding of our Supreme Court’s holding in *Traigle v. PPG Industries, Inc.*, 332 So. 2d 777 (La. 1976). The First Circuit read *Traigle* as applying the exclusion to materials “purchased for the purpose of resale, or for processing *into* the article produced for sale,” thereby forming a “recognizable, integral part of the finished product.” *Exxon*, 583 So.2d at 1197 (emphasis in

original). The First Circuit then held that the materials in dispute qualified for the exemption, stating:

We conclude that the initiators and chain transfer agents are chemically linked to the final product in that they affect the specific properties of the polymer produced. As stated by [an expert witness in the field of polymer chemistry], methane is incapable of reacting alone. [The taxpayer] purchased the initiators and chain transfer agents for the purpose of combining them with ethylene, by means of a chemical reaction, to produce polyethylene. These chemicals are vital to the manufacture of the 80 different grades of polyethylene pellets.

Exxon, 583 So.2d at 1198 (substitutions added).

[The Parish], on the other hand, relies on the case of *Vulcan Foundry, Inc. v. McNamara*, 414 So.2d 1193 (La. 1981). The dispute in *Vulcan* concerned the taxability of coke, a derivative of coal. The taxpayer in that case used the coke in the process of smelting scrap iron for manhole covers and other iron items. Scrap iron loses some of its carbon content in the smelting process. However, the taxpayer needed to replace some of the lost carbon in the finished products to achieve the appropriate grade of iron.

By using coke, which is comprised of 90% carbon, as a heat source for the smelting process, the taxpayer was able to replace some of the lost carbon. To do this, the taxpayer placed layers of coke above and below layers of scrap iron while melting the scrap iron down. A small amount of the carbon from the coke transferred into the molten iron. The most critical factor to the Supreme Court, however, was that the coke was purchased as a heat source. The Court determined that the addition of carbon to the end product was a secondary benefit of the use of coke.

[The Parish's] expert witness, Dr. Brian Goodall, testified that although free radicals and catalysts, such as ZN 203, are both used to trigger polymerization, they are as different as "apples" and "oranges." Dr. Goodall

testified that free radicals leave recognizable and identifiable component molecules at the ends of the resulting polymer chains. ZN 203, however, does not become a terminal component of the finished polymer chain. The polymer chains in this case end up with hydrogen molecules at the end of their chains, and ZN 203 does not contain hydrogen.

The Board can readily conclude that [Pinnacle] purchased ZN 203 to achieve specific molecular weight distributions, and the resulting benefits, in the final products. Achieving the desired physical characteristics was critical for [Pinnacle] to make a marketable polymer. However, under the reasoning of *Graphic Design Packaging*, the third prong of the *International Paper* test does not ask whether a material was purchased for its specific benefits to the final product. Those benefits are more pertinent to the second prong of the *International Paper* test.

A careful reading of *Exxon* leaves the Board to conclude that the central dispute in that case concerned the link between the use of free radicals and the resulting benefit to the final product. The connection between the material and the benefit to the final product is properly viewed as an analysis of the second prong of the test. The second prong is not at issue here, because the parties have already stipulated that ZN 203 is beneficial to the final product.

As Dr. Goodall and Mr. Swanepoel testified, the inclusion of pre-polymerized polypropylene in ZN-203 prevents the polymer from losing its shape in the reactor. In this respect, the purpose of pre-polymerization is to provide stability during the polymerization process. The use of a catalyst to cause a reaction is generally not subject to this analysis because it is most often used up in the reaction or separately removed. The evidence established that after its use in the reaction, the ZN-203 is deactivated by steam so that it becomes a harmless impurity. The evidence established that the optimal amount of catalyst residue was zero, but that there was no ongoing need to remove these trace residues. The purpose of introducing ZN-203 was to serve as a catalyst and cause a reaction, *not for the inclusion of even its few trace elements in the final product.* [Emphasis supplied.]

Pinnacle argues that the Board committed legal error when it utilized an “improperly restrictive purpose test” and, in essence, employed a “primary” or “sole” purpose test in contravention of the Supreme Court’s rulings in *International Paper* and *NISCO*, particularly with respect to its failure to find, at a minimum, that the 50% pre-polymerized polypropylene component of ZN 203 did not satisfy the third prong of the purpose test. Pinnacle contends that the testimony of its witnesses established that, because “Pinnacle ‘knowingly’ purchases and uses ZN 203 with the ‘understanding’ that both components of ZN 203 [the catalyst component and the pre-polymerized polypropylene component] will remain in the final product,” its inclusion of ZN 203 in its end product was “not unintended” and was “by design,” and that this evidence was sufficient to satisfy the third prong of the *International Paper* purpose test. We disagree.

Under Pinnacle’s proposed application of the purpose test, a manufacturer can satisfy the third prong merely by establishing that it “knowingly” uses the purchased raw material in its manufacturing process with the “understanding” that elements from the materials—no matter how insignificant or incidental—will remain in its finished product. While Pinnacle contends the Board utilized an improperly restrictive purpose test, Pinnacle asks this Court to employ an overly broad purpose test, which, arguably, eliminates consideration of the actual “purpose” or “purposes” for which the raw material was purchased altogether or mistakenly equates “knowing” and “understanding” with “purpose.” Under Pinnacle’s proposed application, whether the manufacturer purchased the raw materials *for the purpose of inclusion in the end product* is either irrelevant or is satisfied as long as the manufacturer knowingly uses the raw material it purchases with the understanding that at least some of the material will end up in its final product.

We find that Pinnacle’s proposed application of the third prong does not comport with the Supreme Court’s interpretation of the purpose test in *International Paper, supra*, or *NISCO, supra*, upon which Pinnacle relies. At the very least, the cases are factually distinguishable from the instant case and both address whether the manufacturer’s purpose for purchasing the raw material was, at least in part, for inclusion in its end product, a consideration that Pinnacle appears to gloss over or perhaps redefine.

In *International Paper*, while the Supreme Court expressly rejected a “primary” purpose requirement to the purpose test, which Pinnacle erroneously contends the Board employed here, the Court nevertheless employed a purpose test, recognizing that IP purchased the chemicals for purposes of bleaching the lignin in the pulp it used to manufacture white paper products, and because the significant amount of oxygen atoms derived from those chemicals during the bleaching process were bonded and incorporated into the molecular structure of the pulp, thereby increasing the quality of the pulp. The oxygen atoms derived from the bleaching chemicals remained in the product “by design;” without it, both the quality and color of the pulp would be compromised and render it unsuitable for manufacturing the type of paper IP sought to produce. *Id.* at 1126. Because one purpose for purchasing the bleaching chemicals was for inclusion of the oxygen atoms derived from the chemicals into the end product, IP’s purchase met the third prong of the “further processing exclusion,” and no sales taxes thereon were determined to be due. *Id.*

Unlike *International Paper*, the testimony and evidence introduced at the hearing herein established that ZN 203 is not necessary for inclusion, nor is it an integral part of Pinnacle’s end product. Put simply, neither its inclusion nor exclusion affects the quality of Pinnacle’s end product. The trace elements of the ZN 203 catalyst component found in the end product are hydrolyzed and even

though they are uniformly dispersed throughout the polypropylene polymer, they are not bonded into the molecular structure of the polymer. Thus, if the catalyst residues from ZN 203 were removed from the end product—which the experts agreed was unnecessary and a needless expense—the integrity of the polypropylene pellets would not be compromised. Similarly, while the pre-polymerized polypropylene component of ZN 203 may have the benefit of adding 72 parts per million more of polypropylene in Pinnacle’s end product, the evidence showed it is merely a “single straw in the bale of straw” and is incidental to, and not an integral part of, Pinnacle’s end product. Moreover, that “little bit more” of polypropylene contained in the end product that is derived from ZN 203 is not a purpose for which Pinnacle purchases ZN 203.

In *NISCO*, the Supreme Court similarly found that the manufacturer had a dual purpose for its purchase of limestone: inhibiting sulfur emissions when producing electricity, and producing ash. The *NISCO* Court looked to NISCO’s “purposeful decisions” and “choice of manufacturing process and technology” when it considered whether NISCO’s purchase of limestone met the purpose prong of the “further processing exclusion.” Pinnacle avers that, like *NISCO*, its purchases of ZN 203 should be excluded from taxation since it “purposefully selected to include ZN 203 among the materials it utilizes to manufacture its polypropylene pellets.” However, there is absolutely no evidence in the record showing that Pinnacle purposefully designed its process for manufacturing polypropylene so that trace elements from the ZN 203 would remain in its end product. To the contrary, Pinnacle’s process is arguably designed so that minimal ZN 203 catalyst residues end up in its final product; during the degassing phase, Pinnacle specifically aims to hydrolyze or kill any ZN 203 catalyst residues that might wind up in the polypropylene it produces.

We find that the Board did not err when it determined that the *only* purpose for which Pinnacle purchased the ZN 203 was to react with other materials in Pinnacle's manufacturing process to create polypropylene pellets. The Board did not employ an improperly restrictive primary purpose test; it merely found that the testimony and evidence presented did not support a finding that Pinnacle satisfied the third prong of the *International Paper* purpose test. Pinnacle failed to establish that it purchased ZN 203 "for purposes of inclusion of even its few trace elements in the final product."

Pinnacle further contends that the Board committed legal error in its interpretation of the *Graphic Packaging* and *Exxon* cases. We disagree. Pinnacle contends that the testimony of its witnesses established that the role played by the catalyst component in ZN 203 in its manufacture of polypropylene pellets is "remarkably similar" to the role the initiators and chain transfer agents played in Exxon's production polyethylene pellets, and, thus, the cases should yield the same result. As such, Pinnacle avers the Board committed legal error by failing to conclude that Pinnacle, like Exxon, satisfied the purpose prong of the "further processing exclusion." According to the Parish's expert, however, comparing the role ZN 203 plays in Pinnacle's production of polypropylene to the role the initiators and chain transfer agents play in Exxon's production of polyethylene was the equivalent of comparing "apples to oranges."

In *Exxon*, the "free radicals" Exxon used in its polymerization process were chemically linked to every polyethylene pellet Exxon produced. Conversely, with respect to Pinnacle's polymerization process, except for the first polymer chain formed in the reactor, which is the only polymer chain that contains the pre-polymerized polypropylene component of ZN 203, each of the other millions of polymer chains created contains hydrogen molecules at its beginning and end. Hydrogen is not a component of ZN 203. Thus, of the *millions of polymer chains*

created, the *only* chemical link ZN 203 has to Pinnacle's end product is the 72 parts per million of the pre-polymerized polypropylene component that is linked to a *single* polymer chain of the millions of polymer chains produced, whereas molecules from the initiators and chain transfer agents used by Exxon were bonded to *every single polymer chain* of the end product Exxon produced. As explained by Dr. Goodall, unlike the initiators and chain transfer agents utilized by Exxon that become "part of the polymer," "nothing that came from the catalyst [is] associated with the polymer" Pinnacle produces. The Board did not commit legal error in its interpretation and application of *Exxon, supra*.

Similarly, Pinnacle avers the Board misinterpreted the holding in *Graphic Packaging* when it found that, "[while] achieving the desired physical characteristics was critical for [Pinnacle] to make a marketable polymer[,]” achieving certain characteristics in the end product is not relevant to the third prong of the *International Paper* test, but rather goes to whether the use of ZN 203 was beneficial (*i.e.*, the second prong) to the end product. Although Pinnacle asserts this interpretation constitutes legal error, we find that the Board's analysis directly comports with what the court held in *Graphic Paper*. Moreover, we, too, find that Pinnacle's contention that it purchased ZN 203 "for the purposes of achieving specific and designed results *vis a vis* the production of its various polymer products ... to show that the purpose test was met" is irrelevant to the inquiry of whether Pinnacle's purchase of ZN 203 was for the purpose of inclusion in its final product. In short, the Board did not conflate the second and third prongs or misinterpret the holding in *Graphic Packaging*.

Unlike *Graphic Packaging*, where removal of the sodium and sulfur chemicals from the finished product, to which the chemicals were chemically bonded, would likely destroy the benefits achieved in the end product during the manufacturing process (*i.e.*, mass, conductivity, sizing, and strength), Dr. Goodall

testified that if Pinnacle were to remove either the catalyst residues or the pre-polymerized polypropylene derived from ZN 203 from the polypropylene it produced, there would still be polypropylene, though approximately 72 parts per million less.

As stated in *International Paper*, “to be excluded from sales and use tax ... the raw materials must have been purchased for the *purpose of incorporation* within the end products, as the raw material must be *material for further processing* of the final products produced.” 972 So.2d at 1135. From our review of the jurisprudence, the record, and the Board’s written reasons, we detect no legal error in the Board’s application of the “further processing exclusion” as set forth in *International Paper*, *Traigle*, *Vulcan*, *NISCO*, *Graphic Packaging*, or *Exxon* to determine whether Pinnacle’s purchases of ZN 203 were for the purpose of inclusion into its end product.

Was the Board’s Decision Manifestly Erroneous?

Because we find that the Board utilized the appropriate laws and procedures in reaching its decision, we must now determine if the Board was manifestly erroneous in reaching its conclusion that Pinnacle’s purchases of ZN 203 were not for the purpose of incorporation or inclusion into the end product and, thus, are not excluded from taxation under the “further processing exclusion.” A careful review of the record before this Court demonstrates that there is substantial evidence to support the factual determinations the Board made, and thus, we conclude that the Board was not manifestly erroneous in reaching its decision.

The testimony of the witnesses established that the purpose for which Pinnacle purchases ZN 203 is to trigger a chemical reaction to convert monomers into polymer. While Pinnacle contends that its purchases of ZN 203 were *also* for the purpose of inclusion of ZN 203 in its end product, the testimony and evidence presented at the hearing do not support this contention. Instead, the evidence

revealed that Pinnacle purchases ZN 203 with its pre-polymerized polypropylene component so that the catalyst will react more efficiently, with less explosivity, and because it provides stability during the polymerization process. Dr. Goodall and Mr. Swanepoel both testified that the pre-polymerized polypropylene in ZN 203 also prevents the polymer from losing its shape in the reactor.

The evidence further established that once the reaction is complete and the polymer is created, the ZN 203 catalyst residues are “deactivated” or “killed” with steam so that they become an innocuous or harmless impurity in the end product, and so that they will not cause damage, such as discoloration or corrosion, to the quality of the final product. According to Dr. Goodall, the optimal level of ZN 203 catalyst residues remaining in the end product is zero. The evidence and testimony showed that the fifth generation ZN 203 catalyst that Pinnacle uses to manufacture its polypropylene was developed and designed specifically so that there would be *less* of the ZN 203 catalyst residues remaining in the final product, *not more*. And while ZN 203 catalyst residues remain in the end product and are uniformly dispersed throughout Pinnacle’s final product, the presence of ZN 203 is not integral to the end product, nor are the catalyst residues incorporated into the end product; they can be removed without compromising the integrity of the polypropylene pellets.

Though Pinnacle contends that its catalyst system is intentionally designed, or that it purposely purchases ZN 203 so that it will be incorporated into its final product, the testimony does not support this contention. The experts agreed that only 72 pounds of every one million pounds, or 72 parts per million, of the polypropylene pellets that Pinnacle produces is derived from the pre-polymerized polypropylene in ZN 203. As to the ZN 203 catalyst residues that end up in the final product, Dr. Goodall stated this is not intentional, but merely the result of an inefficiency in the manufacturing process in the nature of an impurity, and to

remove them is unnecessary and not worth the added expense. Moreover, while Pinnacle purchased ZN 203 knowing its use would result in trace elements of the pre-polymerized polypropylene component winding up in its finished product, Pinnacle's expert, Dr. Klendworth, testified that Pinnacle did not purchase ZN 203 for the polypropylene polymer it contained; it purchased ZN 203 for the catalyst it contained. In short, it is clear from the record that the purpose for which Pinnacle introduced ZN 203 into its manufacture of polypropylene was to serve as a catalyst to trigger a reaction, "not for the inclusion of even its few trace elements in the final product," as the Board concluded.

The Board's findings show that the Board gave more credence to the testimony of Dr. Goodall over that of Pinnacle's expert, Dr. Klendworth. Credibility determinations, evaluations of expert testimony, and resolutions of conflict in such testimony are questions for the trier of fact and are subject to the manifest error standard of review. *Foley v. Entergy La., Inc.*, 06-983 (La. 11/29/06), 946 So.2d 144. From our review of the record, we find there to be ample support for the Board's factual findings. We detect no manifest error in the findings that Pinnacle's purchases of ZN 203 were not for further processing or for the purpose of inclusion in its end products.

CONCLUSION

In conclusion, we find that the Board of Tax Appeals did not err in its application of the legal principles governing the "further processing exclusion." Its findings of fact and determination that Pinnacle's purchases of *Avant* ZN 203 did not satisfy the third criteria of La. R.S. 47:301(10)(c)(i)(aa)(I)(ccc) because Pinnacle's purchases were not for the purpose of inclusion of ZN 203 in its final product, are not manifestly erroneous. Accordingly, we affirm the Board's judgment.

AFFIRMED

SUSAN M. CHEHARDY
CHIEF JUDGE

FREDERICKA H. WICKER
JUDE G. GRAVOIS
MARC E. JOHNSON
ROBERT A. CHAISSON
STEPHEN J. WINDHORST
HANS J. LILJEBERG
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NOTICE OF JUDGMENT AND CERTIFICATE OF DELIVERY

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CURTIS B. PURSELL
CLERK OF COURT

19-CA-310

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RUSSELL J. STUTES, JR. (APPELLEE)

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