

PreScouter

# Eco-Friendly Diapers: Current Market Outlook

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# Inquiry Question

What are the top 'green' or eco-friendly brands already available on the market.

The variables to consider are:

- Brand
- Cost
- Time it takes to degrade
- What makes it biodegradable

This inquiry will not be looking into common brands such as Pampers and Huggies.

# Executive Summary

There are several eco-friendly diapers on the market. In order to be considered as an eco-friendly diaper, the diaper can not be made with plastic in the lining, or have a filling made with petrochemical-based polymers (sodium polyacrylate). It must also be composed of materials that are more natural and decompose faster than traditional diapers.

This inquiry listed the top 5 'green' diaper brands on the market and detailed the top 3. The best eco-friendly diaper brands were found to be **Bambo Nature** and **Earth's Best** based on materials and performance. Both of these brands outscored traditional diapers in the area of absorbency.

Hybrid diapers are a compromise between disposable and biodegradable diapers. They are a better option than traditional disposable diapers for decreasing the amount of landfill waste, but most inserts do not come in the form of biodegradable material.

Future 'green' diaper brands will make use of emerging technologies such as nanotechnology and more natural biopolymers to replace synthetic SAPs.

# Executive Summary

A revolution in environmental concerns focussing on landfill waste has brought back the popularity of cloth diapers and the manufacturing of newly introduced “biodegradable” diapers. This study covered the top eco-friendly diaper manufacturers present on the market.

- The top brand according to customer reviews, price and quality is **Earth’s Best**.
- **Bamboo-based** diapers prove to be the softest and most absorbent, but are the most expensive.
- New plant-based polymers and nanotechnology can further improve absorbency and decrease the environmental footprint associated with disposable diapers.

# Supplementary Information

# The Difference Between Traditional, Green and Biodegradable Diapers

## **Traditional Disposable Diapers:**

Most traditional disposable diapers are not biodegradable and are estimated to take hundreds of years to degrade<sup>2</sup>. In addition to being the third largest consumer item in landfills, traditional disposable diapers require both renewable and non-renewable raw materials for production. The most common materials that go into production are: Super absorbent polyacrylates (SAP), dioxin, phthalates in addition to a number of chemicals (many of which are toxic in high levels).

## **Green Diapers:**

Green diapers<sup>3</sup> are partially biodegradable and contain as little plastic as possible (i.e. plastic in the lining or filling which is made of a petrochemical-based SAP)<sup>7</sup>. Other characteristics include chlorine-free, perfume-free, dye-free and latex-free.

## **Biodegradable Diapers:**

Biodegradable diapers are made of biodegradable materials. Even though they are biodegradable, they will not decompose in landfills and require composting.

# Top Brands

The Top 5 Brands based on reviews<sup>4,5</sup>, three of which are profiled in the following slides:

1. Earth's Best
2. Bambo Nature
3. Nature Babycare
4. Seventh Generation
5. 365 Everyday Value

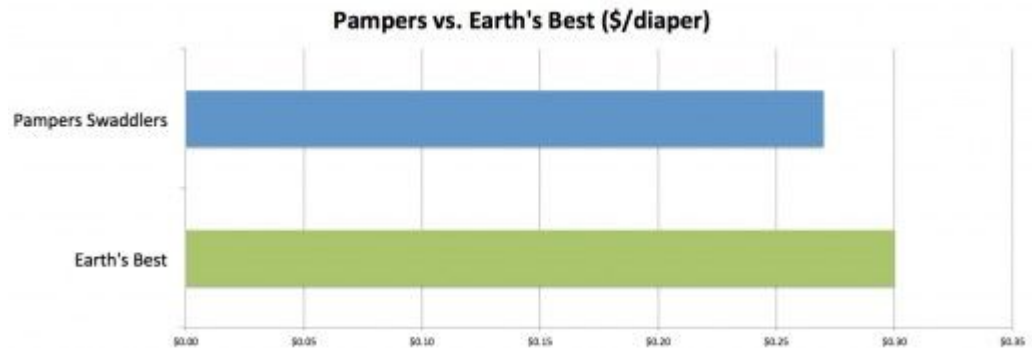
# Earth's Best

Considered one of the best eco friendly diapers for the diapers for the following reasons:

- Chlorine free
- Hypoallergenic and dye free
- Fragrance free
- Latex free
- Made from renewable resources such as corn and wheat by-products
- Petrochemicals not used in much of the production
- One of the lower cost diapers: only 3 cents more/diaper than Pampers Swaddlers (Table 1).
- Scores high in absorbency and fit/leakage.



Table 1. Price comparison between Pampers's Swaddlers and Earth's Best





# Bambo Nature

Considered one of the best eco friendly diapers for the diapers for the following reasons:

- Chlorine free
- Allergen free
- Nordic Label Certified ([click here for accreditations](#))
- Made from raw materials that can be grown rapidly- it is using available materials without the need to cut trees
- Scores the highest in absorbency over all green and non green diapers



# Nature Babycare

Considered one of the best eco friendly diapers for the diapers for the following reasons:

- Made of GMO-free corn based film
- Unbleached
- Contains no latex
- No fragrance
- No TBT (tributyltin)
- Hypoallergenic
- Only about 60% biodegradable
- Scores low in absorbance in some reviews and high in absorbency in other reviews (Table 2)

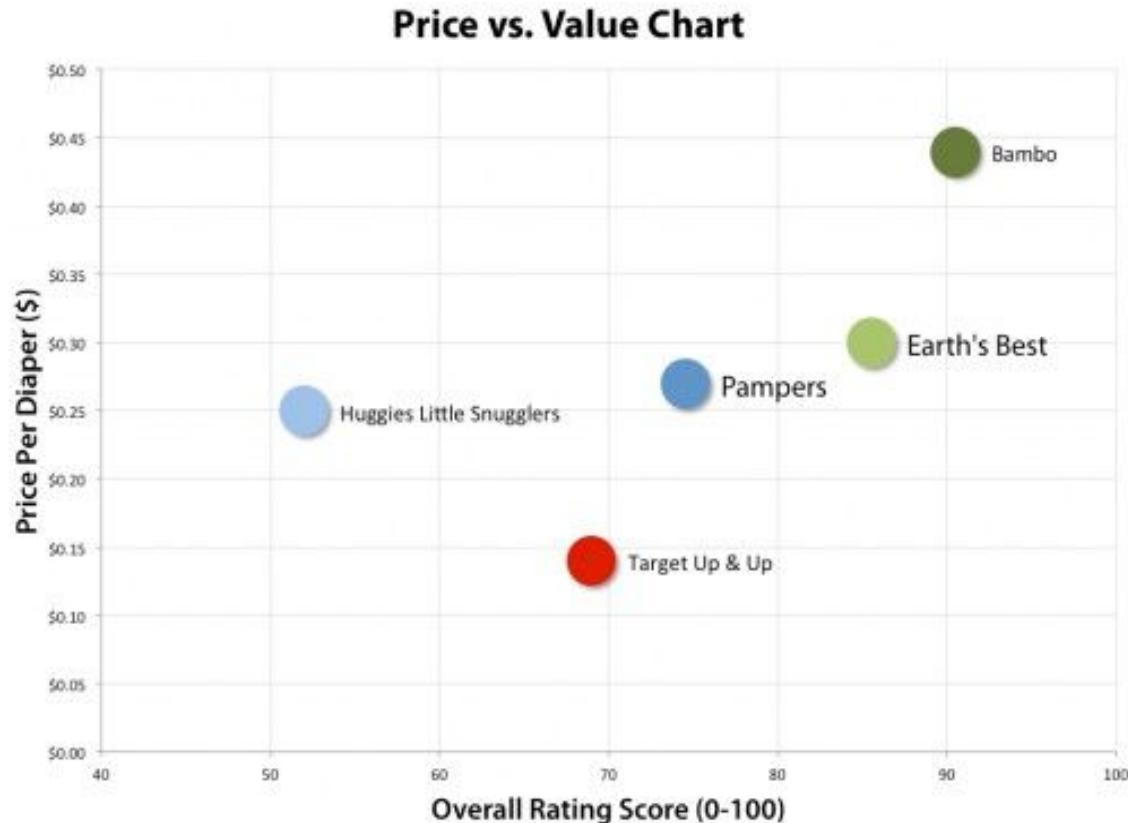
# Overall Comparison of Top 3 Brands

Table 2. Overall comparison of top 3 green diaper brands. Bambo identified as best quality and Earth's Nature as most cost-efficient

| Product             | Nature Babycare  | Bambo Nature  | Earth's Best Tender Care               |
|---------------------|--|---|--|
| Price               | \$0.49 List<br>\$0.37 each at Amazon                       | \$0.48 List<br>\$0.29 each at Amazon                        | \$0.36 List<br>\$0.34 each at Amazon   |
| Overall Score       |  |   |  |
| Awards              |  |   |  |
| Pros                | Absorption, fragrance & chlorine free, natural & renewable | High score, eco/health, excellent performance/construction  | Mostly free of additives, price, green |
| Cons                | Paper feel, durability issues                              | Higher price  | Waxy feel to cover, lower absorbency   |
| Bottom Line         | Great performing green diaper at an ok price               | Best diaper, amazing absorption, higher price, but worth it | Great green diaper for a nice price    |
| Ratings by Category | Nature Babycare  | Bambo Nature  | Earth's Best Tender Care               |
| Absorbency - 40%    |  |   |  |
| Leakage - 25%       |  |   |  |
| Comfort - 15%       |  |   |  |
| Health - 10%        |  |   |  |
| Eco-friendly - 5%   |  |   |  |
| Durability - 5%     |  |   |  |
| Specs               | Nature Babycare  | Bambo Nature  | Earth's Best Tender Care               |
| Type of Diaper      | Green  | Green   | Green                                  |
| Chlorine-Free       | Yes, chlorine-free wood pulp                               | Yes   | Yes                                    |
| Latex-Free          | Yes  | Yes   | Yes                                    |

# Price Comparison – Traditional Brands VS Green Brands

Table 3. Costs - Identifying Earth's Best as the most cost effective green diaper brand, and Bambo as the best performer out all brands.












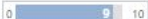
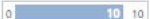


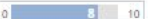


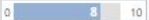



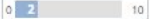

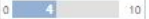
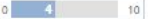
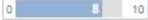

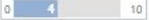
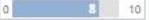
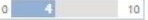





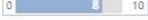
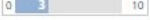

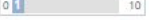



# Comparison – Other Brands

## Test Results and Ratings

Displaying 1 - 5 of 24

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| Rank                | #1  | #2   | #3   | #4  | #5  |
|---------------------|---|--|--|---|---|
| Product             | <br><b>Bambo Nature</b><br>Read the Review | <br><b>Nature Babycare</b><br>Read the Review | <br><b>Broody Chick</b><br>Read the Review | <br><b>Attitude</b><br>Read the Review | <br><b>The Honest Company Diapers</b><br>Read the Review |
| Awards              |    |  |  |   |   |
| Price               | \$0.48 List<br>\$0.29 each at Amazon  | \$0.49 List<br>\$0.37 each at Amazon   | \$0.64 List<br>\$0.79 each at Amazon   | \$0.47 List   | \$0.41 List<br>\$0.41 each at Amazon  |
| Overall Score       |    |   |    |                                        |    |
| Star Rating         | ★★★★★   | ★★★★★  | ★★★★☆  | ★★★★☆   | ★★★★☆   |
| Pros                | High score, eco/health, excellent performance/construction  | Absorption, fragrance & chlorine free, natural & renewable   | Eco-friendly, absorption, chlorine & fragrance free  | Vegetable-base, CO2 neutral, no animal testing, chlorine or perfume   | Cute graphics, green  |
| Cons                | Higher price  | Paper feel, durability issues  | Durability, health score for green diaper  | Price, difficult to tell front/back, larger sizes   | Expensive, concerns about company's "honesty"   |
| Bottom Line         | Best diaper, amazing absorption, higher price, but worth it   | Great performing green diaper at an ok price   | Adequate performance, but most expensive diaper we tested  | Eco-healthy, w/ great absorbency, if your budget allows   | Competing green diapers have lower price w/ similar performance   |
| Ratings by Category | <b>Bambo Nature</b>   | <b>Nature Babycare</b>   | <b>Broody Chick</b>  | <b>Attitude</b>   | <b>The Honest Company Diapers</b>   |
| Absorbency - 40%    |    |   |    |                                        |    |
| Leakage - 25%       |    |   |    |                                        |    |
| Comfort - 15%       |    |   |    |                                      |    |
| Health - 10%        |    |   |    |                                      |    |
| Eco-friendly - 5%   |    |   |    |                                      |    |
| Durability - 5%     |    |   |    |                                      |    |
| Specs               | <b>Bambo Nature</b>   | <b>Nature Babycare</b>   | <b>Broody Chick</b>  | <b>Attitude</b>   | <b>The Honest Company Diapers</b>   |
| Type of Diaper      | Green   | Green  | Green  | Green   | Green   |
| Chlorine-Free       | Yes   | Yes, chlorine-free wood pulp   | Yes  | Yes   | Yes   |
| Latex-Free          | Yes   | Yes  |  | Yes   | Yes   |

Expand to show full specification table | Hide details

# Hybrid Diapers

Hybrid diapers are a cross between a cloth and fitted disposable diaper. They generally have a waterproof outer layer and disposable inserts, decreasing the amount of waste going into a landfill<sup>2</sup>.

## **The best biodegradable hybrid:**

**GroVia** is the only brand that has inserts that are made from partially biodegradable materials (the remainder is compostable). This does not mean it is 100% biodegradable, but that it can decompose faster than brands that are only compostable (such as **Flip**)<sup>6</sup>

# Future Products

## Future products in development:

### 1) Superabsorbent Bio-Polymers<sup>8</sup>

“**Tethex SAP** powders are based on a patent-pending technology platform. Tethex SAP is a cornstarch-based SAP with similar performance/ economics to traditional acrylamide-based SAPs manufactured using green materials with green processes.”

Claims to be competitive with novel features, manufacturing, price, and ecological advantages over the existing synthetic SAPs.

### 2) Nanotechnology (Can it make Diapers Green?)

- QuarTek, is attempting to make a disposable, flushable diaper based on nanotechnology.
- Cine'al developed a highly absorbent biodegradable material called Hydromash made from jellyfish and nanoparticles. They report that Hydromash biodegrades in less than 30 days.<sup>11</sup>

## References

- 1) <https://www.diaperjungle.com/pages/diaper-history-timeline>
- 2) <http://www.thenaturalbabyco.com/guides/cd-guide/are-diapers-biodegradable.html>
- 3) <http://www.babygearlab.com/a/11114/Green-Diapers-vs-Traditional-Whats-the-Best-Choice>
- 4) <http://babieslounge.com/best-natural-disposable-diapers/>
- 5) <http://www.babygearlab.com/Disposable-Diaper-Reviews/compare?>
- 6) <http://www.grovia.com/cd-basics/getting-started/great-diaper-debate.html>
- 7) <http://money.cnn.com/2017/02/01/technology/diapers-ecofriendly-tethis/>
- 8) <http://www.tethis.com/>
- 9) <https://www.honest.com/baby/honest-diapers>
- 10) <http://www.nanobusiness.org/can-nanotechnology-make-diapers-green.html>
- 11) <https://www.greenprophet.com/2014/04/new-diapers-made-from-jellyfish-biodegrade-in-under-30-days/>
- 12) <https://www.smallfootprintfamily.com/dangers-of-disposable-diapers>



# Next Inquiries

| Topic               | Question  | Report    |
|---------------------|---|-----------|
| Patent landscape    | What natural, highly-absorbent materials can replace synthetic SAP? | Inquiry 2 |
| Adjacent industries | What eco-friendly materials possess the softness of cotton?         | Inquiry 3 |
| Related research    | What can replace the plastic used in outer lining?                  | Inquiry 4 |
| Market analysis     | SWOT analysis of eco-based vs conventional diapers                  | Inquiry 5 |
|                     |   |           |
|                     |   |           |
|                     |   |           |

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