

Company: Catalysta Industries Pvt. Ltd.

CEO: Ujjwal Bisaria

Report Authors:

- Kavita
- Anmol Bansal
- Mosham
- Snehil Tripathi
- Tamanna Meena

Chemical Formula: C₈H₉NO₂ (HOC₆H₄NHCOCH₃)

Chemical Name: Acetaminophen (Paracetamol)

Use case:

Acetaminophen is used to relieve mild to moderate headaches, muscle aches, pain from menstrual periods, colds and sore throats, toothaches, backaches, reactions to vaccinations (shots), and to reduce fever. Acetaminophen is typically used orally, but can be given intravenously.

- **Sinus Relief:** Acetaminophen and phenylephrine combination is used specifically targeting sinus symptoms, such as sinus pressure, stuffy nose, and sinus congestion caused by the common cold, or the flu.
- **Allergy Relief:** Certain combination medications like Chlorpheniramine-Acetaminophen with antihistamines are used to alleviate allergy symptoms like sneezing, runny nose, itchy eyes, and congestion.
- **Pain and Fever Relief:** Combination medications such as acetaminophen and ibuprofen (Advil Dual action with acetaminophen), or acetaminophen, aspirin, and caffeine (Arthriten) are used in combination pain relievers, to enhance its analgesic effects.
- **Toothache:** Maxigesic tablets combine acetaminophen and ibuprofen in clinically appropriate doses to simplify administration and dosage regimen. We compared this combination with each of the constituent drugs for the relief of pain after extraction of third molar teeth.

Alternatives to Paracetamol: Some alternatives of paracetamol are listed below.

- **Ibuprofen:** Ibuprofen is a nonsteroidal anti-inflammatory drug that is used to relieve pain, fever, and inflammation. This includes painful menstrual periods, migraines, and

rheumatoid arthritis. It may also be used to close a patent ductus arteriosus in a premature baby. It can be used orally or intravenously.

- **Naproxen:** Sold under the brand name Aleve among others, It is a nonsteroidal anti-inflammatory drug used to treat pain, menstrual cramps, inflammatory diseases such as rheumatoid arthritis, gout and fever. It is taken orally. It is available in immediate and delayed release formulations.
- **Aspirin:** This also belongs to the non-steroid, anti-inflammatory medication class. It works similarly to ibuprofen but slows the clotting ability in the bloodstream. Because of this, it's often given to reduce someone's risk for heart attack and stroke. Aspirin isn't recommended for children; it is linked to Reye's syndrome, a childhood illness affecting the brain and liver. Although aspirin is ranked as one of the best OTC pain reliever medications, it is most commonly recommended by healthcare providers for its heart benefits.
- **Oxycodone:** Oxycodone, sold under various brand names such as Roxicodone and OxyContin, is a semi-synthetic opioid used medically for treatment of moderate to severe pain. It is highly addictive and is a commonly abused drug. It is usually taken by mouth, and is available in immediate-release and controlled-release formulations.
- **Capsaicin:** Capsaicin is an active component of chilli peppers, which are plants belonging to the genus Capsicum. It is a chemical irritant and neurotoxin for mammals, including humans, and produces a sensation of burning in any tissue with which it comes into contact.

Acetaminophen is considered superior to Ibuprofen

Acetaminophen and ibuprofen are both over-the-counter medications commonly used to relieve pain and reduce fever. However, acetaminophen is generally considered safer than ibuprofen and the opioid medications oxycodone and hydrocodone for several reasons. Paracetamol has few side effects, while ibuprofen may cause headaches, gastrointestinal issues, and other complications.

- Ibuprofen, oxycodone, and hydrocodone are known to irritate the stomach lining and can lead to gastrointestinal issues such as ulcers, bleeding, and stomach pain. Acetaminophen is less likely to cause these problems.
- Acetaminophen is not an opioid, unlike oxycodone and hydrocodone. These opioids have a high potential for addiction and misuse, leading to serious health consequences, including overdose and death.
- While acetaminophen effectively reduces pain and fever, it does not possess anti-inflammatory properties like ibuprofen. However, this can be seen as an advantage

in certain situations, as it may be preferred for individuals who cannot tolerate anti-inflammatory drugs due to conditions like gastritis or peptic ulcer disease. Acetaminophen is available without a prescription and is generally more accessible than prescription medications like oxycodone and hydrocodone. This accessibility makes it a preferred choice for many people seeking pain relief.

Imports around the world

- As per Volza's Global Import data, Acetaminophen import shipments in World stood at **27.9K**, imported by **2,675** World Importers from **1,513** Suppliers.
- World imports most of its Acetaminophen from India, China and United States
- The top 3 importers of Acetaminophen are United States with **11,643** shipments followed by India with **2,415** and Brazil at the 3rd spot with **1,254** shipments.

Imports in India

- As per Volza's India Import data, Acetaminophen import shipments in India stood at **2.4K**, imported by **139** India Importers from **216** Suppliers.
- India imports most of its Acetaminophen from United States, Canada and China and is the 2nd largest importer of Acetaminophen in the World.
- Top 3 Product Categories of Acetaminophen Imports in India are
 - HSN Code 30049099 : 30049099
 - HSN Code 29242990 : 29242990
 - HSN Code 30041090 : 30041090

HSN Code 30049099 : 30049099

- As per Volza's India Import data, Acetaminophen and HSN Code 30049099 import shipments in India stood at **583**, imported by **61** India Importers from **85** Suppliers.
- India imports most of its Acetaminophen and HSN Code 30049099 from United States, Canada and Israel and is the largest importer of Acetaminophen and HSN Code 30049099 in the World.
- The top 3 importers of Acetaminophen and HSN Code 30049099 are India with **583** shipments followed by United States with **369** and Guinea at the 3rd spot with **230** shipments.

HSN Code 29242990 : 29242990

- As per Volza's India Import data, Acetaminophen and HSN Code 29242990 import shipments in India stood at **553**, imported by **36** India Importers from **44** Suppliers.
- India imports most of its Acetaminophen and HSN Code 29242990 from United States, Germany and China and is the largest importer of Acetaminophen and HSN Code 29242990 in the World.
- The top 3 importers of Acetaminophen and HSN Code 29242990 are India with **553** shipments followed by Vietnam with **229** and Peru at the 3rd spot with **76** shipments.

HSN Code 30041090 : 30041090

- As per Volza's India Import data, Acetaminophen and HSN Code 30041090 import shipments in India stood at **279**, imported by **6** India Importers from **9** Suppliers.
- India imports most of its Acetaminophen and HSN Code 30041090 from United States, Australia and India and is the largest importer of Acetaminophen and HSN Code 30041090 in the World.
- The top 3 importers of Acetaminophen and HSN Code 30041090 are India with **279** shipments followed by France with **49** and Guatemala at the 3rd spot with **14** shipments.

Economic feasibility:

- **Input Raw Materials**
 - Nitrobenzene
 - Sulphuric Acid
 - Ammonia
 - Acetic Anhydride
- **Preliminary economic feasibility based on cost of raw materials, solvents and product selling price.**

Cost of Raw Materials:

Nitrobenzene: Depending on the source and quantity purchased, the cost can vary but is typically around Rs. 160 per kilogram.

Sulphuric Acid: Cost varies from Rs 60 to Rs 600 per kilogram depending upon grade standard and form of sulphuric acid purchased.

Ammonia: The cost of ammonia can vary depending on factors such as purity and volume purchased. It is generally priced around Rs. 35 per kg.

Acetic Anhydride: Acetic Anhydride is relatively expensive and can cost around Rs. 500 per kilogram.

Cost of Solvents:

Depending on the specific production process, various solvents may be used. These can include water, organic solvents, and acids. The cost of solvents will depend on the type, quantity, and purity required for the process.

Selling Price of Paracetamol:

- 1) The selling price of paracetamol varies based on factors such as market demand, competition, purity, and regulatory standards. As of the latest available data, the price can range from Rs. 800 - 1000 per kilogram.

References:

1. <https://www.drugs.com/acetaminophen.html>
2. <https://www.firstaidpro.com.au/blog/ibuprofen-vs-paracetamol>
3. <https://www.drugs.com/compare/paracetamol-vs-ibuprofen>
4. <https://www.volza.com/p/acetaminophen/import/import-in-india/>

List the contributions of each author:

- Author 1 and 2 carried out the market research for chemical trade data.
- Author 2 and 3 prepared the use case.
- Author 4 looked at economic feasibility.
- Author 5 researched about import and selling data.

Sign the pdf and upload.

Name	Roll No	Signature(by name)
Ujjwal Bisaria	221154	ujjwal bisaria
Snehil Tripathi	221071	Snehil Tripathi

Market Analysis Report

Kavita	220512	Kavita
Anmol Bansal	220162	Anmol Bansal
Mosham	220671	Mosham
Tamanna Meena	221119	Tamanna Meena