

Industry	Leisure
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Challenge 1

A. Challenge Statement/Title:

Compostable alternative for plastic oxo-biodegradable garbage bag.

B. Background of the Problem:

A leading hotels and resorts chain currently employs plastic oxo-biodegradable garbage bags for waste disposal. In pursuit of its sustainability goals, the company aims to find a viable and effective compostable alternative to replace these plastic bags and reduce its environmental impact.

- **Environmental Impact:** The use of plastic oxo-biodegradable garbage bags can still lead to environmental harm, as they may break down into harmful microplastics, persisting in the environment and posing a threat to ecosystems and wildlife. The company seeks to minimize plastic waste and adopt more eco-friendly waste disposal solutions.
- **Compostable Material Identification:** Identifying suitable compostable materials for garbage bags that can effectively contain waste, maintain strength, and degrade naturally without harmful residues is a critical challenge. The alternative material must offer comparable performance to plastic bags.
- **Functional Requirements:** The compostable alternative must meet specific functional requirements, such as tear resistance, leak-proof properties, and ease of use, to ensure it is a practical replacement for plastic garbage bags in hotels and resorts.
- **Cost and Feasibility:** The company needs to find a compostable alternative that is economically feasible and does not significantly impact the overall waste management costs for hotels and resorts.

C. Technical Requirements / Performance Criteria:

Strength of the garbage bag – proper holding capabilities should be there.

Environmental conditions of compostable bag for degradation, time for degradation

Resistance to leakages.

Temperature resistance.

Challenge 2

A. Challenge Statement/Title:

Compostable alternative for plastic cling film.

B. Background of the Problem:

The leading hotels and resorts chain currently relies on plastic cling film for various kitchen work, including food storage and covering. In pursuit of its sustainability goals, the company aims to identify a viable and effective compostable alternative to replace plastic cling film and reduce its environmental impact in kitchen operations.

- **Environmental Impact:** The use of plastic cling film contributes to plastic waste, posing significant environmental harm through pollution and potential harm to ecosystems and wildlife. The company seeks to minimize plastic usage and adopt more eco-friendly alternatives.
- **Compostable Material Identification:** Identifying suitable compostable materials for kitchen use that can effectively serve as a replacement for plastic cling film is a key challenge. The alternative material must offer similar functionalities and performance while being eco-friendly.
- **Functional Requirements:** The compostable alternative must meet specific functional requirements such as flexibility, sealing properties, and food preservation capabilities, ensuring it is a practical replacement for plastic cling film in various kitchen tasks.
- **Cost and Feasibility:** The company needs to find a compostable alternative that is economically feasible and does not significantly impact the overall kitchen operation costs.

C. Technical Requirements / Performance Criteria:

Thickness of the film - how well the film stays wrapped around food.

High strength characteristics such as tensile strength and puncture resistance

Alternative film should ensure the food grade packaging requirements.

Transparent nature of the film should be ensured.

Moisture and air barrier properties.

The material should be non-contaminated and introduction of hazards due to the film should be eliminated e.g – pigment migration etc.

Challenge 3

A. Challenge Statement/Title:

Compostable alternatives for plastic toothbrushes, razors and combs.

B. Background of the Problem:

The leading hotels and resorts chain currently provides guests with plastic toothbrushes, razors, and combs in guest rooms. In pursuit of its sustainability goals, the company aims to find viable and effective compostable alternatives to replace these single-use plastic items and reduce its environmental impact.

- **Environmental Impact:** The use of single-use plastic toothbrushes, razors, and combs contributes to plastic waste, which has severe environmental consequences, including pollution and harm to marine life. The company seeks to minimize plastic usage and adopt more eco-friendly options.
- **Compostable Material Identification:** Identifying suitable compostable materials for toothbrushes, razors, and combs that can effectively serve as replacements is a significant challenge. The alternative materials must offer similar functionalities and performance while being biodegradable and eco-friendly.
- **Functional Requirements:** The compostable alternatives must meet specific functional requirements, such as durability, effectiveness, and user-friendliness, to ensure a satisfactory guest experience.
- **Cost and Feasibility:** The company needs to find compostable alternatives that are economically viable and do not significantly impact the overall guest room amenity costs.
- **Guest Satisfaction:** Ensuring that the guests are comfortable and satisfied with the compostable alternatives, as their acceptance and positive experience are essential to the successful adoption of sustainable amenities.

C. Technical Requirements / Performance Criteria:

For toothbrushes - rounded bristles and soft textures, right size of the head, conformance to the ISO standard requirements – ISO 20126.

For razors – Durability, condition of the blade e.g – minimize skin irritation.

For combs – nontoxic, smooth, anti-bacterial and anti-fungal properties.

Challenge 4

A. Challenge Statement/Title:

Compostable alternative for polythene suit cover.

B. Background of the Problem:

The leading hotels and resorts chain currently utilizes polythene suit covers for various applications, such as protecting and presenting guest clothing items. In pursuit of its sustainability goals, the company aims to identify a viable and effective compostable alternative to replace these polythene suit covers and reduce its environmental impact.

- **Environmental Impact:** The use of polythene suit covers contributes to plastic waste, causing environmental harm through pollution and potentially affecting ecosystems and wildlife. The company seeks to minimize plastic usage and transition to more eco-friendly options.
- **Compostable Material Identification:** Identifying suitable compostable materials for suit covers that can effectively serve as replacements is a significant challenge. The alternative materials must offer similar functionalities and performance while being biodegradable and eco-friendly.
- **Functional Requirements:** The compostable alternative must meet specific functional requirements, such as durability, protection from dust and moisture, and ease of use, to ensure proper clothing presentation and guest satisfaction.
- **Cost and Feasibility:** The company needs to find a compostable alternative that is economically viable and does not significantly impact the overall expenses for suit covers.
- **Integration and Supplier Readiness:** Ensuring a smooth transition from polythene to compostable suit covers requires cooperation from suppliers and an evaluation of their readiness to provide the new alternative.

C. Technical Requirements / Performance Criteria:

Waterproof nature, dust resistance and durability.

Challenge 5

A. Challenge Statement/Title:

Compostable alternative for salad bowl cover.

B. Background of the Problem:

The leading hotels and resorts chain currently utilizes polythene cover for salad bowls. In pursuit of its sustainability goals, the company aims to identify a viable and effective compostable alternative to replace these polythene covers and reduce its environmental impact.

- **Environmental Impact:** The use of polythene salad bowl covers contributes to plastic waste, causing environmental harm through pollution and potentially affecting ecosystems and wildlife. The company seeks to minimize plastic usage and transition to more eco-friendly options.
- **Compostable Material Identification:** Identifying suitable compostable materials for salad bowl covers that can effectively serve as replacements is a significant challenge. The alternative materials must offer similar functionalities and performance while being biodegradable and eco-friendly.
- **Functional Requirements:** The compostable alternative must meet specific functional requirements, such as durability, moisture resistance, and proper fit on salad bowls, to ensure food freshness and presentation.
- **Cost and Feasibility:** The company needs to find a compostable alternative that is economically viable and does not significantly impact the overall food packaging expenses.
- **Supplier Readiness:** Ensuring a smooth transition from polythene to compostable salad bowl covers requires cooperation from suppliers and an evaluation of their readiness to provide the new alternative.

C. Technical Requirements / Performance Criteria:

Availability of food grade certificates, moisture, and air barrier properties, nontoxic and elimination of introduction of hazards into the food

Challenge 6

A. Challenge Statement/Title:

Compostable or recyclable alternative for plastic bento box.

B. Background of the Problem:

The leading hotels and resorts chain currently employs plastic bento boxes for food packaging and presentation. In pursuit of its sustainability goals, the company aims to identify a viable and effective recyclable or compostable alternative to replace these plastic boxes and reduce its environmental impact.

- **Environmental Impact:** The use of plastic bento boxes contributes to plastic waste, causing environmental harm through pollution and potential harm to ecosystems and wildlife. The company seeks to minimize plastic usage and transition to more environmentally friendly options.
- **Recyclable or Compostable Material Identification:** Identifying suitable recyclable or compostable materials for bento boxes that can effectively serve as replacements is a significant challenge. The alternative materials must offer similar functionalities and performance while being recyclable or compostable.
- **Functional Requirements:** The recyclable or compostable alternative must meet specific functional requirements, such as sturdiness, leak resistance, and thermal insulation, to ensure food quality and customer satisfaction.
- **Recycling or Composting Infrastructure:** Ensuring that appropriate recycling or composting facilities or programs are available for the proper disposal and management of the used recyclable or compostable bento boxes is crucial to maximize their environmental benefits.
- **Cost and Feasibility:** The company needs to find a recyclable or compostable alternative that is economically viable and does not significantly impact the overall food packaging expenses.
- **Supplier Readiness:** Ensuring a smooth transition from plastic to recyclable or compostable bento boxes requires cooperation from suppliers and an evaluation of their readiness to provide the new alternative.

C. Technical Requirements / Performance Criteria:

Food grade nature of the container, free from toxic material, moisture and air barrier properties, tamper proofed.