

TIFR CAM Waste Management Program

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TIFR Centre for Applicable Mathematics is establishing a waste segregation program at the Centre. This document contains important information regarding this program such as different categories of waste, commonly encountered items under each category, where to discard your waste item and the vendors handling our waste. It will only take a few minutes and we request you to read it.

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Our goal is a simple and effective waste segregation program that will ensure compliance with current BBMP waste segregation regulations, and at the same time, have minimal impact on research, teaching, administrative and other activities of the Centre. With this in mind, we have set a trial period until the end of April 2015 to make all of us aware of the simple rules regarding waste segregation at source. Two orientation sessions have been conducted already. All the housekeeping and cafeteria staff, and a majority of students and post-doctoral fellows who reside in the building have attended these sessions. We will upload all documents related to waste segregation program on TIFR CAM Intranet.

Currently, while we dispose of electronic waste (e.g., printer cartridges) and sanitary waste properly, the large volume of waste generated, which are wet and dry wastes, are given to BBMP truck only for them to mix it all up. We strongly feel that this should not continue, and the waste segregation program at TIFR CAM is a step in this direction.

If you are concerned about the garbage crises in Bangalore and other major cities in India, we believe that, as a first step, we as a responsible major research centre in the country should ensure that the garbage we generate is disposed of in a responsible way.

Starting May 01, 2015, waste segregation program at TIFR CAM will be strictly implemented. We request your cooperation and assistance in the successful implementation of this program. As you may already be aware, keeping track of which items go to which bin is all that is required for proper segregation at source. If you have any questions, comments, concerns or suggestions for improvement, please feel free to send an E-mail to recycling@math.tifrbng.res.in.

1 Reading Guide

This document was prepared keeping in mind that some members spend time in the Centre during the day whereas others live in the building as well. Table 1.1 lists the relevant sections for different members of TIFR CAM.

2 Different Categories of Waste

There are, broadly speaking, **seven** different categories of waste.

1. Wet Waste (Code on bin : **WET**)
2. Dry Waste (Code on bin: **DRY**)
3. Sanitary Waste (Code on bin: **SANITARY**)
4. E-Waste (Code on bin: **E-WASTE**)
5. Household Hazardous Waste (Code on bin: **HAZARDOUS**)
6. Sharps (Code on bin: **SHARPS**)
7. Inerts (Code on bin: **INERTS**)

Table 1.1: **Reading Guide**

Members	Relevant Sections
<ul style="list-style-type: none"> • Faculty members • Staff members (Permanent and Contract Staff) • Students and Post-doctoral fellows living outside 	<ul style="list-style-type: none"> • Section 2 • Section 3 • Section 4 • Section 5 • Section 6 • Section 7 • Section 8
<ul style="list-style-type: none"> • Students staying in Hostel Rooms • Post-doctoral fellows staying in Hostel Rooms • Visiting Students staying in Hostel Rooms • Visitors to TIFR CAM staying in Apartments 	<ul style="list-style-type: none"> • Section 2 • Section 3 • Section 4 • Section 5 • Section 6 • Section 7 • Section 8 • Section 9

3 Vendors Handling our Waste

One frequent complaint you may have heard is that the segregated waste is given only for the BBMP handler to mix it all up in one truck. To avoid such situations, we have identified separate vendors who will handle majority of the waste generated in our complex. Please see Table 3.1.

Table 3.1: **Vendors**

Waste Category	Vendor
WET Waste	Will be processed in-house to be used as manure for our plants. We have more than 2000 plants in this complex!
DRY bin	Handled by Swachha Eco Solutions . This is an organization located on Sandeep Unnikrishnan Road in Attur Layout. They recycle most dry waste. For example, plastic carry bags are melted to make PVC-type pipes for encasing electric wires, sprinkler systems for irrigation etc.
SANITARY Waste	Handled by Best Practices Washrooms . Housekeeping staff will drop off all sanitary waste generated in the complex in secure bins placed in the women's restrooms from which it will be picked up by Best Practices Washrooms .
E-WASTE	Handled by government-authorized scrap dealers and by vendors providing our electronics-related supplies.
SHARPS , INERTS and HAZARDOUS	Will go to landfills. Will be given to BBMP or dropped off in authorized locations.

4 TIFR CAM Waste Management Program Volunteers

4.1 Student Volunteers

- Jayesh Badwaik (jayesh@math.tifrbng.res.in)
- Sombuddha Bhattacharyya (sombuddha@math.tifrbng.res.in)
- Neelabja Chatterjee (nilabja@math.tifrbng.res.in)
- Indranil Chowdhury (indranil@math.tifrbng.res.in)
- Abhishek Das (abhidas@math.tifrbng.res.in)
- Deep Ray (deep@math.tifrbng.res.in)

4.2 Staff Volunteer

- Veena K. (library@math.tifrbng.res.in)

4.3 Faculty Volunteer

- Venky Krishnan (vkrishnan@math.tifrbng.res.in)

5 Garbage Segregation in Offices

This section is relevant for:

- Faculty members
- Staff members (Permanent and Contract Staff)
- Post-doctoral fellows
- Students & Visiting Students
- Visitors to TIFR CAM

We have provided two bins (Green for **WET** waste and Blue for **DRY** waste) for each faculty, student and staff offices in this building. Additionally, bins marked **E-WASTE** and **HAZ-ARDOUS** (for household hazardous waste) are relevant for offices and these are provided in the common areas.

5.1 Items in **WET** bin

Items to be put in **WET** bin are food items, that is, items that will easily decompose. Under most circumstances, offices will not generate a large amount of waste in this category. Nevertheless, a few common items require attention. Please see Table 5.1. These will be picked up the housekeeping staff on a regular basis.

5.2 Items in **DRY** bin

In offices we may generate a reasonable amount of items in the **DRY** bin category. Please see Table 5.2 for a list of commonly encountered items. *If your items are small in size, we request you to use the bin in your office room. Otherwise, we request you to use the **DRY** in the common area of each floor.*

Table 5.1: Items in office **WET** bin

<p>Items in WET bin</p>	<ul style="list-style-type: none"> • Banana and orange peels • Discarded apple core • Fruit and fruit peels • Used tea bags with thread and tag removed. The tag with the thread should be put in DRY bin (It will not easily decompose). • Used matchsticks
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5.3 Items in **HAZARDOUS** bin

We do not expect offices in this building to generate large quantities of waste in the **HAZARDOUS** category. However, should you wish to discard any item mentioned below, we request you to dispose it of in the bin marked **HAZARDOUS** placed in the common areas of each floor. Please see Table 5.3.

5.4 Items in **E-WASTE** bin

We expect offices to generate reasonable amount of waste items in this category. Please see 5.4. We request you to use the bin marked **E-WASTE** to dispose of items in this category. These are placed in the common areas of each floor.

Unbroken bulbs fall into the category of **E-WASTE** (please see Table 5.5), but since they are likely to break easily, we have a separate bin in the basement of TIFR CAM just for this purpose. Please discard your used unbroken bulbs in that bin.

5.5 Items in **SHARPS** bin

Should you find yourself with some broken glass item, this is the right bin to discard them. A full list of items in this category is given in Table 5.6. A **SHARPS** bin is placed inside the cafeteria. Please ask the cafeteria staff.

Table 5.2: **Items in office DRY bin**

<p>Paper and card-board</p>	<ul style="list-style-type: none"> • Plain paper (writing paper) • Colored or glossy paper (advertisements) • Cardboard boxes, cleaned pizza boxes • Tag and thread of tea bag only (Tea bag in WET bin).
<p>Plastics</p>	<ul style="list-style-type: none"> • Plastic grocery bags • Plastic containers (emptied) • Tetra packs (dried & flattened) • Plastic spoons
<p>Miscellaneous items</p>	<ul style="list-style-type: none"> • Biscuit, chips and chocolate wrappers • Bubble wraps, thermocol, styrofoam • Used white-board markers • Used pencils and pens • Unbroken glass bottles • Empty medicine bottles • Aluminum foils (cleaned) • Empty medicine strips • Plastic foils (cleaned) • Take out containers (clear of any food item)

Table 5.3: **Items in HAZARDOUS bin**

Pest Killers	<ul style="list-style-type: none"> • Mosquito repellent bottles (Good Knight etc.) • Naphthalene balls
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Table 5.4: **Items in E-WASTE bin**

Batteries	<ul style="list-style-type: none"> • Batteries of all types: alkaline, lithium etc.
Computer Accessories	<ul style="list-style-type: none"> • Cables, keyboard, mouse etc. • CDs and DVDs • Printer cartridges
Media devices	<ul style="list-style-type: none"> • Mobile phones along with batteries • Landline phones (wired, wireless) • Chargers, cables • Cameras (film, digital still, digital video)

Table 5.5: **Items in E-WASTE (UNBROKEN BULBS ONLY) bin**

Bulbs	<ul style="list-style-type: none"> • Unbroken Fluorescent lamps (tube lights) • Unbroken CFL bulbs (IF THE BULB IS BROKEN, PUT IN SHARPS BIN)
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Table 5.6: **Items in SHARPS bins**

<p>Items in SHARPS bin</p>	<ul style="list-style-type: none"> • Push pins, iron nails • Broken glass (broken drinking glass, broken sauce bottle, broken jam bottles etc.) • Broken bulbs, broken tube-lights • Used blades, razors • Used scissors, knives
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5.6 Items in INERTS bin

Inerts (also known as rejects) is a category of waste that cannot be recycled and will go to landfills. Table 5.7 gives a list of items under this category. **INERTS** bins are placed in the common areas of each floor as well as near the Security desk.

Table 5.7: **Items in INERTS bin**

<p>Items in INERTS bin</p>	<ul style="list-style-type: none"> • Cigarette butts and ash • Broken and unbroken ceramic mugs • Broken and unbroken earthen ware
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6 Garbage Segregation in Cafeteria

This section is relevant for:

- Faculty members
- Staff members (Permanent and Contract Staff)
- Post-doctoral fellows
- Students & Visiting Students
- Visitors to TIFR CAM

Two bins are provided inside the cafeteria near the drinking water area. One for **DRY** and the other marked **WET**. Please dispose of decomposable food items in the **WET** bin and recyclable items *generated only from the cafeteria* in the **DRY** bin. Please refer to Tables 6.1 and 6.2.

Table 6.1: **Items in Cafeteria WET bin**

Items in WET bin in the Cafeteria	<ul style="list-style-type: none">• Food discards/leftover food• Used/soiled paper napkins• Any fruit and fruit peels• Used tea bags with thread and tag removed. The tag with the thread should be put in the DRY bin (It will not easily decompose).• NO NON-DECOMPOSABLE WASTE ITEM IN THIS BIN
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Table 6.2: **Items in Cafeteria DRY bin**

<p>Items in DRY bin in the Cafeteria</p>	<ul style="list-style-type: none">• Tetra packs (dried & flattened)• Plastic water or juice bottles (empty out the contents into the sink before discarding)• Biscuit, chips and chocolate wrappers• Plastic bags (clear of food items)• Plastic containers (clear of food items)• Plastic spoons• Aluminum foils (clear of food items)• Plastic foils (clear of food items)• Take out containers (clear of food items)• Paper plates (clear of food items)• PLEASE DO NOT PUT PAPER AND CARD-BOARD IN THIS BIN. USE OTHER DRY BINS AVAILABLE FOR THIS PURPOSE
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7 Garbage Segregation in Restrooms

This section is relevant for:

- Faculty members
- Staff members (Permanent and Contract Staff)
- Post-doctoral fellows
- Students & Visiting Students

We have placed two bins in the restrooms, one marked **DRY** and the other **SANITARY**. Please refer to Table 7.1. We request you to put paper napkins used for drying hands in the **DRY** bin. These will be recycled. Please do not put any decomposable items in this **DRY** bin. If the paper napkin is contaminated with bodily fluids such as phlegm or blood, please put them in the **SANITARY** bin. They will be disposed of along with other sanitary wastes generated in the building. For disposal of sanitary napkins, separate bins are provided in the women's restrooms.

8 Garbage Segregation during Workshops and Conferences

Garbage segregation will take place at all times, including, during workshops and conferences organized at TIFR CAM. We will put a copy of this waste segregation document in all the visitors rooms. While food is served, the catering staff will have their person near the disposal area to make sure that **WET** and **DRY** wastes are put into separate bins. We will instruct the catering staff to reduce the use of plastic disposable items. It is our endeavor to have the segregation program in place during conferences and workshops with absolutely minimal impact on our visiting speakers, other visitors and guests.

Table 7.1: **Garbage Segregation in Restrooms**

<p>Items in DRY bin in restrooms</p>	<ul style="list-style-type: none"> • Paper napkins used for hand drying (not contaminated with bodily fluids such as phlegm or blood) • PLEASE DO NOT THROW BANANA PEELS, APPLE CORE ETC. INTO THIS BIN. NO FOOD RESIDUE IN THE DRY BIN IN THE RESTROOMS.
<p>Items in SANITARY bin in restrooms</p>	<ul style="list-style-type: none"> • Paper napkins contaminated with phlegm, blood etc. • Dental floss • Bandages • Soiled cotton and cotton swabs • Used ear buds • NO SANITARY NAPKINS in the brown bin marked SANITARY. Separate bins in the women's restrooms are provided for disposal of sanitary napkins.

9 Garbage Segregation in Hostel Rooms and Apartments

This section is relevant for:

- Students, Post-doctoral fellows, and Visiting Students living in hostel rooms in the building
- Visitors staying in apartments in the building

9.1 Items in **WET** bin

Items to be put in **WET** bin are food items, that is, items that will easily decompose. Table 9.1 gives a list of commonly encountered items. Please use the bins provided for each room for this purpose. Absolutely **NO PLASTIC LINERS** in these bins.

Table 9.1: **Items in WET bin**

Items in WET bin	<ul style="list-style-type: none">• Food discards/leftover food• Used/soiled paper napkins• Any fruit and fruit peels• Used coffee powder, tea powder• Used tea bags with thread and tag removed. The tag with the thread should be put in the DRY bin (It will not easily decompose).• Used matchsticks• DISCARD DIRECTLY INTO THE BIN. NO PLASTIC LINERS.• ABSOLUTELY NO NON-DECOMPOSABLE WASTE ITEM IN THIS BIN
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9.2 Items in **DRY** bin

In your hostel rooms and apartments, you may generate a reasonable amount of items in the **DRY** bin category. Please refer to Table 9.2. *If your items are small in size, we request you to use the bin in your room. Otherwise, we request you to use the **DRY** in the common area of each floor.*

Table 9.2: **Items in DRY bin**

<p>Paper and cardboard</p>	<ul style="list-style-type: none"> ● Plain paper (writing paper) ● Colored or glossy paper (advertisements) ● Cardboard boxes, cleaned pizza boxes
<p>Plastics</p>	<ul style="list-style-type: none"> ● Plastic grocery bags ● Plastic containers (emptied) ● Tetra packs (dried & flattened) ● Plastic spoons
<p>Miscellaneous items</p>	<ul style="list-style-type: none"> ● Biscuit, chips and chocolate wrappers ● Bubble wraps, thermocol, styrofoam ● Used deodorant and shaving cream bottles (emptied) ● Used shampoo and shower gel bottles (emptied) ● Toothpaste, shaving creams (Squeezed out) ● Used white-board markers, pens and pencils ● Unbroken glass bottles ● Empty medicine bottles, Empty medicine strips ● Aluminum and plastic foils (clear of food items) ● Take out containers (clear of food items) ● Used Clothes ● Used toothbrush ● Used shoes/footwear, used doormats ● Leather and rubber ● Insulation wires, metal pieces

9.3 Items in **SANITARY** bin

This is the right bin for disposal of items contaminated with bodily fluids. A full list of items in this category is given in Table 9.3. We have provided small brown bins marked **SANITARY** for each room. If you are disposing sanitary pads, tampons, diapers, cotton swabs contaminated with blood, blood glucose strips contaminated with blood and condoms etc., **please wrap it in a piece of newspaper before discarding it.**

Table 9.3: Items in **SANITARY** bin

Items in SANITARY bin	<ul style="list-style-type: none">• Sanitary pads (wrapped in newspaper)• Tampons (wrapped in newspaper)• Bandages (wrapped in newspaper)• Soiled cotton and cotton swabs (wrapped in newspaper)• Used ear buds, waxing strips• Condoms (wrapped in newspaper)• Diapers (wrapped in newspaper)• Hair, finger and toe nails• Expired unused medicines• Used blood glucose testing strips (wrapped in newspaper)
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9.4 Items in **E-WASTE** bin

You may generate a reasonable amount of waste items in this category. Please refer Table 9.4. Use the bins marked **E-WASTE** to dispose of items in this category. These are placed in the common area of your floor.

Unbroken bulbs fall into the category of **E-WASTE** (please see Table 9.5), but since they are likely to break easily, we have a separate bin in the basement of TIFR CAM just for this purpose. Please discard your used unbroken bulbs in that bin.

Table 9.4: **Items in E-WASTE bin**

Batteries	<ul style="list-style-type: none"> • Batteries of all types: alkaline, lithium etc.
Computer Accessories	<ul style="list-style-type: none"> • Cables, keyboard, mouse etc. • CDs and DVDs • Printer cartridges
Media devices	<ul style="list-style-type: none"> • Mobile phones along with batteries • Landline phones (wired, wireless) • Chargers, cables • Cameras (film, digital still, digital video)
Miscellaneous	<ul style="list-style-type: none"> • Calculator • Wall Clock • Watch

Table 9.5: **Items in E-WASTE (UNBROKEN BULBS ONLY) bin**

Bulbs	<ul style="list-style-type: none"> • Unbroken Fluorescent lamps (tube lights) • Unbroken CFL bulbs (IF THE BULB IS BROKEN, PUT IN SHARPS BIN)
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9.5 Items in **HAZARDOUS** bin

You may not generate large quantities of waste in the **HAZARDOUS** category. However, should you wish to discard any item mentioned in Table 9.6 below, we request you to dispose it of in the bin marked **HAZARDOUS** placed in the common area of your floor.

9.6 Items in **SHARPS** bin

If you would like to dispose of your razor blades or some broken glass item, this is the right bin to discard them. A full list of items in this category is given in Table 9.7.

9.7 Items in **INERTS** bin

Inerts (also known as REJECTS) is a category of waste that cannot be recycled and will go to landfills. Table 9.8 gives a list of items under this category. **INERTS** bins are placed in the common areas of each floor as well as near the Security Desk.

Table 9.6: **Items in HAZARDOUS bin**

Pest Killers	<ul style="list-style-type: none"> • Mosquito repellent bottles (Good Knight etc.) • Naphthalene balls • Rat, Cockroach poison bottles (Hit etc.), poison chinks • Any pesticide, insecticide
Miscellaneous	<ul style="list-style-type: none"> • Mercury thermometers/broken Mercury thermometers • Cosmetics such as nail polish bottles that cannot be cleaned

Table 9.7: **Items in SHARPS bin**

Items in SHARPS bin	<ul style="list-style-type: none"> • Used shaving blades, shaving razors • Push pins, iron nails • Broken glass (broken drinking glass, broken sauce bottles, broken jam bottles etc.) • Broken bulbs, broken tube-lights • Used surgical needles, used syringes • Used scissors, knives
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Table 9.8: **Items in INERTS bin**

Items in INERTS bin	<ul style="list-style-type: none"> • Cigarette butts and ash • Broken and unbroken ceramic mugs • Broken and unbroken earthen ware • Sweeping dust rejects (wrap it in newspaper)
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