





**MODEL: URF 3647** 

PREMIUM



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#### अमाशामा

#### **EXTRAORDINARY**

भाग II—खण्ड 3—उप-खण्ड (ii) PART II—Section 3—Sub-section (ii)

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#### MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE NOTIFICATION

New Delhi, the 8th April, 2016

# GUIDELINES FOR MANAGEMENT OF SANITARY WASTE

As per Solid Waste Management Rules, 2016 (Extracts)



### **CENTRAL POLLUTION CONTROL BOARD**

Ministry of Environment, Forest & Climate Change, Govt. of India Parivesh Bhawan' C.B.D. Cum-Office Complex, East Arjun Nagar, Shahdara, Delhi-110032 May 2018

#### **Extracts**

**S.O. 1357(E).**—Whereas the draft of the Solid Waste Management Rules, 2015 were published under the notification of the Government of India in the Ministry of Environment, Forest and Climate Change number G.S.R. 451 (E), dated the 3rd June, 2015 in the Gazette of India, part II, Section3, sub- section (i) of the same date inviting objections or suggestions from the persons likely to be affected thereby, before the expiry of the period of sixty days from the publication of the said notification on the Solid Waste Management Rules, 2015 in supersession of the Municipal Solid Waste (Management and Handling) Rules, 2000;

And whereas, copies of the said Gazette were made available to the public on the 3rd June, 2015;

And whereas, the objections or comments received within the stipulated period were duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by sections 3, 6 and 25 of the Environment (Protection) Act,1986 (29 of 1986) and in supersession of the Municipal Solid Waste (Management and Handling) Rules, 2000, except as respect things done or omitted to be done before such supersession, the Central Government hereby makes the following rules for management of Solid Waste, namely:-

- Rule 3. **Definitions (1)** In these rules, unless the context otherwise requires;
- 3 (11). "Combustible waste" means non-biodegradable, non-recyclable, non-reusable, non-hazardous solid waste having minimum calorific value exceeding 1500 kcal/kg and excluding chlorinated materials like plastic, wood pulp, etc;
- 3 (14). "Co-processing" means use of non-biodegradable and non-recyclable solid waste having calorific value exceeding 1500k/cal as raw material or as a source of energy or both to replace or supplement the natural mineral resources and fossil fuels in industrial processes;
- 3 (15). "**Decentralised processing**" means establishment of dispersed facilities for maximizing the processing of biodegradable waste and recovery of recyclables closest to the source of generation so as to minimize transportation of waste for processing or disposal;
- 3 (19). "**Dry waste**" means waste other than bio-degradable waste and inert street sweepings and includes recyclable and non-recyclable waste, combustible waste and sanitary napkin and diapers, etc;
- 3 (27). "Incineration" means an engineered process involving burning or combustion of solid waste to thermally degrade waste materials at high temperatures;
- 3 (32). "Non-biodegradable waste" means any waste that cannot be degraded by microorganisms into simpler stable compounds;
- 3 (39). "**residual solid waste**" means and includes the waste and rejects from the solid waste processing facilities which are not suitable for recycling or further processing;

- 3 (41). "sanitary waste" means wastes comprising of used diapers, sanitary towels or napkins, tampons, condoms, incontinence sheets and any other similar waste;
- 3 (46). **"solid waste"** means and includes solid or semi-solid domestic waste, sanitary waste, commercial waste, institutional waste, catering and market waste and other non-residential wastes, street sweepings, silt removed or collected from the surface drains, horticulture waste, agriculture and dairy waste, treated bio-medical waste excluding industrial waste, bio-medical waste and e-waste, battery waste, radio-active waste generated in the area under the local authorities and other entities mentioned in rule 2;
- 3 (53). "**Treatment**" means the method, technique or process designed to modify physical, chemical or biological characteristics or composition of any waste so as to reduce its volume and potential to cause harm;

#### Menstrual Hygiene Management National Guidelines (December 2015)

Menstrual Hygiene Management (MHM) is an integral part of the **Swachh Bharat Mission Guidelines (SBM-G)**. The MHM Guideline (Dec 2015) is issued by the Ministry of Drinking Water and Sanitation to support all adolescent girls and women. It outlines what needs to be done by state governments, district administrations, engineers and technical experts in line departments; and school head teachers and teachers.

As per MHM guidelines, 'Safe disposal' means ensuring that the process of destruction of used and soiled materials is done without human contact and with minimal environmental pollution and 'Unsafe disposal' means throwing used cloth into ponds, rivers, or in the fields exposes others in the area to decaying material and should be avoided. Offsite disposal can be organized with the communal or town solid waste collection and management system. If a hospital with a safe and treatment unit for hazardous waste is nearby, this might be a best solution to explore. However, this is unfortunately not a viable option for many rural schools, and transport will be a logistical and financial challenge. Options for on-site disposal include disposal deep burial, composting, pit burning and incineration. The right option depends on key factors such as amount and type of materials, the available budget (investment and O&M costs) and environmental considerations. Burning in open heap should be totally avoided. If burning is the only option, a deep pit should be used.

Unsafe	Common practices	
_	Throw them unwrapped into fields, rooftops, etc.	
	Wrap them in paper/ plastic bag and throwing them outside	
	Drying, wrap in paper/plastic bag and throw in dustbins (mostly non-rural)	
	Burry them for de-composting	
	Throw them in latrine / toilets	
7	Burn it (rural areas and peri-urban areas)	
	Use small scale incinerators (community or school level)	
Safe	Municipal waste management / burning in health clinics (more urban)	

#### At Villages/Panchayat Level:

At villages and Panchayat areas not having access to common incinerators, may dispose used home-made sanitary napkins made of natural tissues/paper/cloth/cotton as well as re-usable commercial cotton napkins in small **burial pits** of more than 50 cm deep or into pit latrines. In case of commercial sanitary napkins made with plastic and liners, low cost incinerators like "**Matka Incinerator**" kept in open areas (such as open backyard, open fields, terrace of the house, etc.).

#### II) <u>DISPOSAL OF SMALL QUANTITY OF NON-BIO-DEGRADABLE WASTE</u>

According to the **rule 15**, Panchayat / Municipalities shall make an application in **Form I** for grant of authorization for setting up waste processing, treatment or disposal facility. But according to **Rule 15** (y), the application in Form I is only necessary if the volume of waste is exceeding 5 metric tons per day.

Small quantities of waste can be eliminated without authorization. Odor, nuisance shall be checked at regular intervals.

According to **Rule 4 [(1) b**] every waste generator shall wrap up securely the used sanitary waste like diapers, sanitary pads etc; in the pouches provided by the manufacturers or brand owners of these products or in a suitable wrapping materials as instructed by the local authorities and shall place the same in bin meant for dry waste or non-bio-degradable waste.

Again, as per **Rule 4(2)**, no waste generator shall throw, burn or burry the said waste generated by him, on street, open public spaces outside his premises or in the drain or water bodies.

Therefore the waste generator is duty bound to eliminate his waste in his own Premises in scientific way by using proper gadgets ,if no public bins are provided by the Local authority.

#### PROCEDURE

In all cases an estimate for the disposal of MSW is necessary. The quantity of waste should not exceed the limit of 5 metric tons per day. No open yard burning is permissible under law. By using UR FURNACE (patent protected) small quantities of non- bio degradable solid waste can be eliminated without the nuisance of any kind of foul smell or odor. Non -bio degradable , non-recyclable, non-reusable, non- hazardous solid waste having minimum calorific value exceeding 1500 Kcal/Kg and excluding chlorinated plastic(PVC) wood etc are 'combustible waste'.

#### MODEL ESTIMATE

1	Quantity of waste collected /generated at the action point	720kgms
2	Segregation possible (non- usable/ non recyclable and non PVC	24Kgms
3	Manual sweepings	130Kgms
4	Whether the combustion can be done without any sorts of contamination to nearby water body if any	
5	Whether the waste is chemically treated with any chlorinated disinfectants	NO

In UR FURNACE (Patented – No 510611) no fuel is used other than a few sheets of waste paper, no diesel oil or even electricity is necessary as fuel. For non-segregatable items like laminated papers, Activated Carbon Packs\*\* may safely be used in the spiral fire (620C<sup>0</sup>) for eliminating toxic gas if any generated which is trivial and not dangerous in any case.

P.R.RAVINDRAN NAIR (UR furnace patent protection holder)

### III) ABOUT UR FURNACE

During the COVID 19 period especially this equipment is 100% suitable for the disposal of masks and diapers and other sanitary waste. It can be used at any place or at any house without the use of any fuel like kerosene, diesel oil etc; or even electricity.

No apparatus or equipment is used neither to, like the present 'UR FURNACE' so easily and environmentally friendly. It is easy to use ,portable ,no recurring expenditure, maintenance free and user friendly.

The actual invention is the special design of the whole length slit provided vertically along the barrel by which the turbulent motion of the vertical fire column is working to suit the '3Ts' of construction viz; Time, Temperature and Turbulence.

The source of oxygen, the oxidizer is the free air. The new invention is providing oxygen from air satisfying the '3T' rule, Time (Short), Temperature (High) Turbulence (great). Here considerable turbulence is created by inventing the special fixed air slit of 43-47 mm width throughout the vertical apparatus and without any additional devises such as blower or motor. The turbulence created is vigorous enough to complete combustion using the 21% of oxygen available in the surrounding air which we claim as a new invention.

This apparatus is useful for the decentralized disposal of NON-BIODEGRADABLE MSW at the source itself.

#### 1) SPECIFICATIONS:

Temp Range : 420-800 Degree C.Type : Spiral / Turbulence

• Temp. Rising Time : 50-80 Sec. \*

• Ignition : Normal Paper / Hard Board (

**Traditional Method)** 

• Temp. Consistency : Depend on Dry Waste Input

• Odor : NIL

• Handling : Compact, easy to carry around

• Steel Type : a) Structure frame SS 304

b) Furnace Cylinder Imported Special

grade SS

Cylinder Capacity : 91Ltr
 Size : H - 4 ft
 Total Weight : 17.5 Kg

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#### 2) SALIENT FEATURES:

- Portable
- Odorless
- Easy to use
- No recurring expenditure
- Maintenance free
- Cost effective
- User friendly
- Environmentally friendly

#### 3) WORKING PRINCIPLE OF UR FURNACE:

Huge incinerators are often charged with large masses of relatively damp refuse. Considerable air and heat is required to dry the mass before the burning. Unfortunately during the drying phases large quantities of smoke is given off. as the mass dries out, the amount of air required for combustion is decreased and the temperature of the flu gases rises. In incinerators heretofore, the temperature rise often becomes dangerously high. Hence, there is the undesirable condition of the incinerator charge giving off objectionable quantities of smoke during the beginning of the burning operation.

The objects of this invention are attained by a combustion cylinder having a grate at the bottom and an air intake opening at the side of the cylinder in the form of a vertical slit properly designed (fixed or variable type according to requirement).

This cyclonic barrel furnace (UR FURNACE Patented – No 510611) is an innovative portable furnace, which can eliminate unwanted, non-degradable solid waste in a cyclone of fire. A whirlwind of fire and intense heat is created inside the drum, enabling burning of refuse without odor. Combustion is complete, leaving 3% ash. The furnace is ideal for remote locations with limited facilities for disposing of dry waste.

The spiral cylinder made-up of special variety of stainless steel twisted according to invented design make the fire to a spiral form.

By properly feeding air containing 21% of oxygen in a specified manner, temperature increases and accelerates combustion. Air swirls around in the lid until it is forced down into the barrel along the edges. This rotation continues as the air is channeled into the combustion chamber. The rotations of the air intakes make efficient combustion, keeping the outer surfaces of the body cool.

What is astonishing people is that, there is no extra fuel is used for burning; no petrol, kerosene diesel oil or even electricity. It needs only garbage and dry air.

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The large volume of air intake makes it possible to burn "combustible waste" as defined in SOLID WASTE MANAGEMENT RULES 2016 at considerably higher temperatures than those found in a burn pile or a traditional burn barrel.

Overfilling of waste in the burn chamber must be avoided as inflow of air may be blocked, resulting reduced intensity of fire. The more advanced incineration design provides effective turbulence through the forced introduction of air directly into hot zones.

# IV) THE COMPLETE COMBUSTION IS ACHIEVED MAINLY BY THE FOLLOWING FACTORS

#### 1) <u>TEMPERATURE</u>

The temperature generated is a function of the heating value of the waste and auxiliary fuel, incinerator or burn unit design, air supply and combustion control. Complete combustion requires high temperatures. Generally, temperatures that exceed 650°C with a holding time of 1-2 minutes will cause complete combustion of most common household dry waste. Segregation of waste is required when using this apparatus. When high temperatures are achieved, waste will be burned completely and ash, smoke and pollutant concentrations be minimized. However, it may be necessary to employ continuous feed for keeping the temperature steady and efficiently.

#### 2) TURBULENCE

The turbulent mixing of burnable gases with sufficient oxygen is needed to promote good contact between the burning waste and incoming air. This will help in achieving the high temperatures at which waste can be completely burned. The amount of mixing is influenced by the shape and size of the burn chamber and how the air is injected. Passive under - fire ventilation achieved during open burning does not result in sufficient turbulence for the burning of a wide variety of waste. Also, it is important not to overfill the burn chamber as airflow may be blocked and the amount of turbulence further reduced. The more advanced incineration design provide effective turbulence through the forced introduction of air directly into hot zones. The heating value, wetness and chemical properties of the waste affect the combustion process. The higher burn temperature and turbulence that are achieved, will result complete burning and elimination of odour and smoke

#### V) THINGS TO REMEMBER

#### 1) MAXIMIZING COMBUSTION EFFICIENCY

Burn only dry feedstock and periodically add additional waste to the fire in order to maintain high burn temperatures until all waste has been destroyed. Desired operating temperature will be achieved as quickly as possible when operating this device.

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A rapid 'start -up' can be achieved by first loosely loading dry paper and successively paperboard packing, coconut shells and untreated wood into the device. Dry, loosely loaded material will ignite more quickly and burn more evenly than a wet, tightly packed load. Wet waste should only be added after the fire is actively burning. Overfilling the burn chamber will prevent the turbulent mixing of burnable gases and oxygen, and should be avoided.

#### 2) Location and Installation

Locate the furnace in a place predominantly downwind of the site or burn only on days when the wind is light and blowing away from the site. Ensure the burn barrel is located on gravel, rocky outcrop or other area free of combustible materials and vegetation to avoid accidently starting a tundra fire. The 'exhaust gas to combustion air' ratio is particularly important to achieving the maximum burn rate.

#### VI) WHEN OPERATING UR FURNACE:

- ✓ Inspect the furnace for any signs of, corrosion or other physical defects before each burn cycle. Any necessary cleaning must be done before the equipment is used.
- Burn only dry waste. If wet waste is to be burned, mix or batch the waste with other waste that has a low moisture content and high heating value (i.e. dry wood). This will ensure the slow burning of wet waste completely.
- Burn only paper, paperboard packing, untreated wood waste and natural fiber textiles.. Food and food packaging waste should not be burned. Burning non-combustible waste (i.e. metal and glass) will rob the fire of valuable heat and should also be avoided. Food and food packaging, non-combustible and other waste that cannot be burned should be segregated and removed from the site for disposal on a regular basis.
- ✓ Do not overfill or densely pack waste into the furnace as air will be prevented from properly mixing with the waste. This will result in a smouldering, low temperature burn and smoke. Layering wet or slow burning waste with dry fast burning waste will help ensure more complete combustion of all waste.
- The furnace should not be used unless a responsible adult is available to monitor and watch over it until the fire has completely cooled.

### VII) DON'TS

Also do not use the apparatus for burning forbidden plastics, treated wood and exploding material like fire cracks, dry cell, mobile phone cells, spray bottles etc.

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#### VII) CALORIFIC VALUE (CV) OF WASTE

The amount of heat released by a unit weight or unit volume of a substance during complete combustion, measured in units of energy per amount of material e.g. kJ/Kg

The CV of the waste depends on the composition of the waste. Waste with a lot of PVC has a higher calorific value then waste with less PVC and more paper. To estimate the calorific value of the waste mix you have, you can make an average on your composition.

# 1) HOW TO CALCULATE THE AVERAGE CALORIFIC VALUE OF A WASTE MIX

#### 1.1) **EXAMPLE**:

What is the average calorific value of the waste mix?

We have a waste mix consisting out of 3 fractions; Hazardous waste represents 20% of the mass amount and has a calorific value of 12 MJ/kg. Medical waste represents 50% of the mass amount and has a calorific value of 19 MJ/kg. Plastics - PVC waste represents 30% of the mass amount and has a calorific value of 35 MJ/kg.

#### 1.2) CALCULATION:

CALCULATION OF CALORIFIC VALUE OF WASTE				
Material - fraction CV (MJ/kg) % amount %CV representing in waste mix				
Hazardous waste	512	20%	2,4 (= 12 x 0,2)	
Medical Waste	19	50%	9,5 (= 19 x 0,5)	
Plastics - PVC	35	30%	10,5 (=35 x 0,3)	
		Total :	22,4 (= 2,4 + 9,5 + 10,5) MJ/kg	

Conclusion: the waste mix has an average calorific value of 22,4 MJ/kg.

#### 1.3) CALORIFIC VALUE (CV): EXAMPLES

Here we give some approximate about the calorific value of materials.

Type of material	CV (MJ / kg)	CV (k Cal / kg)
Medical waste	19 - 24	4540 - 5735
Industrial & hazardous waste	22 - 40	5257 - 9558
Domestic waste (without recycling)	7 - 16	1673 - 3823

Domestic waste (after recycling)	10 - 14	2389 - 3345
PVC	41	9797
Dry wood	14,4	3441
Paper	13,5	3226
Braun carbon	7 - 12	1673 - 2867
Petrol (benzene)	45 - 47	10573 - 11231
Coal	15 - 27	3584 - 6452
Diesel	46	10992
Ethanol	30	7168

A material can burn without supporting fuel when it has a calorific value of min. 14,4 MJ/kg, this is approximately dry wood. To know the overall calorific value of the waste, you need to measure the calorific value or estimate by analyzing the composition.

If there is no chemical reaction by mixing the different materials together, a weighted average of the different calorific values are good approximate values for the CV of the waste mix.

If the amount of waste is known, and the calorific value of the waste is known, it is possible to design the size of the incinerator and flue gas treatment system.

#### IX) DECOMPOSING TIME FOR DIFFERNT WASTE

Different sources have different information on the actual time various waste items take to decompose in landfills.

	<u>ITEMS</u>	TIME
•	Cigarette Butts:	_10-12 years
•	Monofilament Fishing Line:	_600 years
•	Rubber-Boot Sole:	_50-80 years
•	Foamed Plastic Cups:	_50 years
•	Leather shoes:	_25-40 years
•	Milk Cartons:	_5 years
•	Plywood:	_1-3 years
•	Painted board:	_13 years
•	Cotton Glove:	3 months
•	Cardboard:	
•	Styrofoam:	Does not biodegrade
•	Nylon Fabric:	_30-40 years
•	Tin can:	50 years
•	Ropes:	_3-14 months
•	Waxed milk carton:	_3 months
•	Aluminum cans:	_200-250 years
•	Train tickets:	2 weeks
•	Paper waste:	_2-6 weeks

•	Canvas products:	1 year
•	Batteries:	100 years
•	Lumber:	10-15 years
•	Sanitary Pads:	500-800 years
•	Disposable diapers:	250-500 years
•	Wool Clothing:	1-5 years
•	Tinfoil:	Does not biodegrade

#### X) WHAT IS ACTIVATED CARBON?

Activated carbon has an incredibly large surface area per unit volume, and a network of submicroscopic pores where adsorption takes place. Activated carbon is a material that is produced from carbonaceous source materials, such as coal, coconuts, nutshells, peat, wood, and lignite. The primary raw material used for activated carbon is any organic material with a high carbon content. The carbon-based material is converted to activated carbon through physical modification and thermal decomposition in a furnace, under a controlled atmosphere and temperature. The finished product has a large surface area per unit volume and a network of submicroscopic pores where adsorption takes place.

Activated carbon, also called activated charcoal, is a form of carbon processed to have small, low-volume pores that increase the surface area available for adsorption or chemical reactions. Activated is sometimes substituted Further chemical treatment often enhances adsorption properties. Activated charcoal is a great adsorbent because of it's huge surface area. While it doesn't bind very many ions/ atoms/ molecules per surface area (which is the characteristic of a 'good' adsorbent), due to very big surface area per unit of mass it can absorb a lot of particles. Combustion is a rapid, exothermic reaction between a fuel and oxygen (O<sub>2</sub>). In incineration applications, the fuel is predominately waste (although fossil fuels may be co-fired) and the oxygen source is air. Combustion produces many of the same stable end products, whether the material burned is natural gas, coal, wood, gasoline, municipal solid waste, hazardous waste, or medical waste. The flame zone of a welldesigned incinerator is sufficiently hot to break down all organic and many inorganic molecules, allowing reactions between most volatile components of the waste and the oxygen and nitrogen (N<sub>2</sub>) in air. The predominant reactions are between carbon (C) and oxygen, producing carbon dioxide (CO<sub>2</sub>), and between hydrogen (H) and oxygen, producing water vapor (H<sub>2</sub>O). Incomplete combustion of organic compounds in the waste feed stream produces some carbon monoxide (CO) and carbon-containing particles. Hydrogen also reacts with organically-bound chlorine to produce hydrogen chloride (HCl). In addition, many other reactions occur, producing sulfur oxides (SO<sub>x</sub>) from sulfur compounds, nitrogen oxides (NOx) from nitrogen compounds (and, a little, from the nitrogen in the air), metal oxides from compounds of some metals, and metal vapors from compounds of others

#### 1) ACTIVATED CARBON - USES

It is used in methane and hydrogen storage, air purification, decaffeination, gold purification, metal extraction, water purification, medicine, sewage treatment, air filters in gas masks and respirators, filters in compressed air, teeth whitening, and many other applications.

#### XI) MORE ON PLASTICS

The word, plastic, was derived from the word 'Plastikos' meaning 'to mould' in Greek.

It is a material which is largely used because of its convenience and usefulness in daily life

#### Well-known plastics, and their use

- Polyamide (usually called nylon) Women's stockings, gears, car parts, toothbrush bristles
- Polycarbonate bulletproof glass, compact discs, DVDs.
- Polyethylene tubes, bottles, shopping bags, milk jugs, body armor (made with polyethylene with especially long chains)
- Polyethylene terephthalate -(called PET when used for bottles, and polyester when used for clothes or other materials)
- Polypropylene food containers, chairs
- Polystyrene CD cases, plastic cups, plastic forks and knives
- Polyurethane rubber, foam, shiny coatings on wood and tile
- Polyvinyl chloride (called PVC, usually) pipes (chemicals can make PVC softer for toys and cushions)

MATERIAL	MOULD TEMPERATURE RANGE (°C)	MELT TEMPERATURE RANGE (°C)
ABS	40-80	190-270
ABS/PC ALLOY	40-80	245-265
ACETAL	50-120	180-210
ACRYLIC	50-80	220-250
CAB	40-50	170-240
HDPE	20-60	210-270
LDPE	20-60	180-240
NYLON 6	40-90	230-290
NYLON 6 (30% GF)	50-90	250-290

NYLON 6/6	40-90	270-300
NYLON 6/6 (33% GF)	40-90	280-300
NYLON 11	40-110	220-250
NYLON 12	40-110	190-200
PEEK	120-160	350-390
POLYCARBONATE	85-120	280-320
POLYESTER PBT	60-90	240-275
PET (SEMI CRYSTALLINE)	20-30	260-280
PET (AMORPHOUS)	20-30	260-280
POLYPROPYLENE (COPOLYMER)	30-80	200-280
POLYPROPYLENE (HOMOPOLYMERS)	30-80	200-280
POLYPROPYLENE (30% TALC FILLED)	30-50	240-290
POLYPROPYLENE (30% GF)	40-80	250-290
POLYSTYRENE	30-60	170-280
POLYSTYRENE (30% GF)	40-80	250-290
PVC P	20-40	170-190
PVC U	20-60	160-210
SAN	50-85	200-260
SAN (30% GF)	50-70	250-270
TPE	40-70	260-320

Most of the **effects** of temperature to thermoplastic occur at high **heat** levels, although excessively low temperatures can have an **impact** as well. Mechanical properties, chemical resistance, electrical conductivity, material fatigue, and many other attributes can be affected by increased temperatures.

This is to clear and show the fact that all the materials can be toxic when they are un appropriately used and exposed.

Some polymers can emit toxic substance at **120 degrees Celsius** and some can withstand **420 degrees** with almost zero levels of emitions.

At extreme temperatures polymers will simply burn down very quickly - leaving no toxic materials around.

#### XII) BOTTOM LINE

Use each material for the purpose for which it is designed. The appropriate use of equipment will cause absolute zero harm; therefore the correct use is more appropriated.

In short, the new invented UR FURNACE is unique in nature, user friendly and environmentally friendly.

