

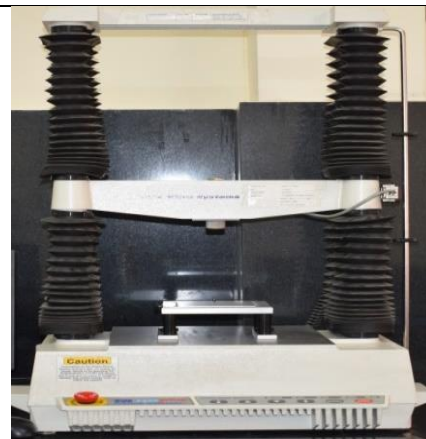
Name of the instrument/equipment/machine

Description Texture Analyzer

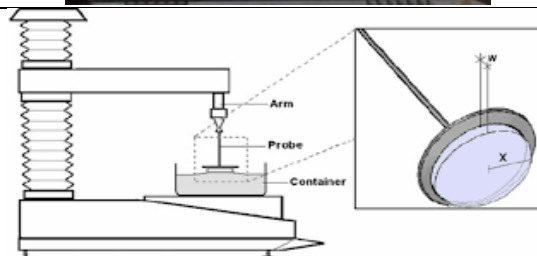
Make: Stable Micro System

Model: 2008 (TA. HD. Plus)

Specification: An instrument used to measure and analyze product texture. The machine has probes with 2, 5, 25, 75 mm along with cutting probes. Instrument is fitted with 50 kg load shell along with one point control through software operation.



Working principle: The principle of texture measurement system is to physically deform a test sample in a controlled manner and measure its mechanical properties response. Forces created this movement recreate consumer interactions and automatically transform them into numerical values displayed on screen.



Applications

1. Determination of textural properties such as rupture force energy, cutting force strength etc. of food products.
2. It is used to measure chewiness, springiness, gumminess, scoopyness, puncture and rupture force etc. of various food items.

User instructions

1. Turn on instrument and its software
2. Load project, calibrate height and apply appropriate probe
3. Go to run a test, apply settings
4. Put the sample at platform and run tests
5. Select all runs, run macro and save the data at appropriate place
6. Turn off first software and then instrument

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Phone: 01634-224024, FAX : 01634-225313

Charges: 347/- per hour/ 10 samples

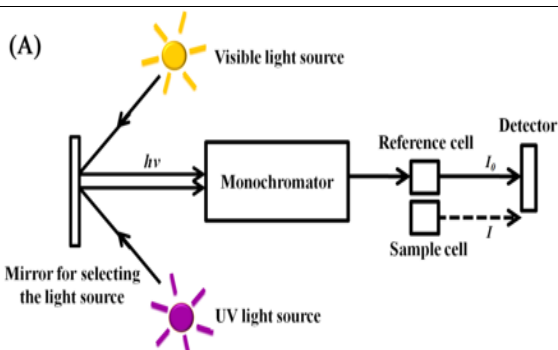
	Cost , Rs.	GST, Rs.	Total cost, Rs.
Farmers	416/-		
Students	451/-		
Other national laboratories/ R&D organizations	486/-		
Industries	520/-		

Name of the instrument/equipment/machine

Description : UV/ visible spectrophotometer
Make: SHIMADZU
Model: UV-2550/
Specification: Spectrophotometer having detection system both for ultraviolet (190-380) and visible (380-760 nm). In addition has detection limit to infrared region up to 900 nm.



Working principle: It refers to absorption spectroscopy and based on Lambert-Beer's law which states that when a beam of monochromatic light passes through a solution, absorbance of that solution is directly proportional to concentration of absorbing molecule/species and its path length at a particular wavelength.



Applications

1. Quantitative determination of minute quantities of substances like biochemical, pigments, metabolites, macromolecules of plants, microbes, soil etc.
2. Enzymes reactions and kinetics
3. Screening lambda max of various compounds and components

User instructions

1. Turn on instrument and its software
2. Set wavelength, put blank in cuvette
3. Place cuvette in reference slot and do auto-zero
4. Pour clear sample in cuvette, place in sample slot and record absorbance which should be in the range of 0.0 to 1.0-1.3
5. Turn off first software and then instrument
6. Samples should be clear one

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Charges: 347/- per hour/ 10 samples. Rates of chemicals will be extra as per actual basis

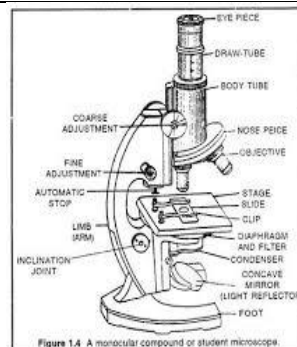
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Farmers	416/-		
Students	451/-		
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Industries	520/-		

Name of the instrument/equipment/machine

Description : Trinocular Microscope
Make: OLYMPUS
Model: CX31
Specification: Trinocular compound microscope having four objective lenses with magnification power of 10, 20, 40 and 100x. The equipment is computerized and having an ocular lens on which a camera can be connected to take magnified images.



Working principle: General microscopes consist of a complex system of objective lens, ocular lens, lens tube, stage, and reflector. An object placed on the stage is magnified through the objective lens, which can be seen through the ocular lens.



- Applications**
1. For seeing micro objects like microorganisms viz. bacteria/fungus and their spores
 2. For identification of pathological strains, their sporulation character etc.
 3. To study anatomical features of plants and animals
 4. To see microtomes of organs

User instructions

1. Place the object on glass slide and a drop of sterile water
2. Place cover slip
3. Adjust reflector and then lens to view clear image
4. The enlarged image can be photographed for future reference

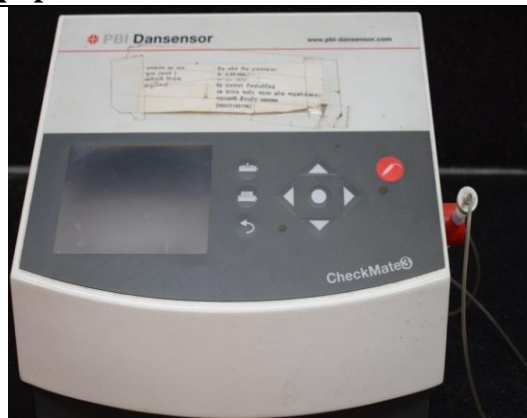
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Industries	520/-		

Name of the instrument/equipment/machine

Description : Headspace gas analyzer
Make: PBI DANSENSOR
Model: Checkmate 3
Specification: Digital analyzer with connecting thin needle/syringe for estimation of O₂/CO₂ in packed food samples.



Working principle: A thin needle connected to a pump draws precise volume of headspace gas into analyzer equipment. The headspace gas comes into contact with a sensor that can measure the concentration of residual O₂/CO₂ in headspace gas sample. It is a measurement of internal volume of a package not occupied by the product.

Applications

1. Estimation of gas concentration (O₂/CO₂) in MAP foods
2. Useful for quality control process for food, beverage and pharma products that have been packaged in a modified atmosphere
3. Can be applied to dairy products, meat products, carbonated drinks, snacks, backed foods etc.

User instructions

1. Turn on the equipment
2. Place septa on packed food
3. Insert attached syringe in packed item through septa
4. Instrument records and displays O₂/CO₂ values digitally

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Charges: 352/- per hour/ 10 samples

	Cost , Rs.	GST, Rs.	Total cost, Rs.
Farmers	422/-		
Students	458/-		
Other national laboratories/ R&D organizations	493/-		
Industries	528/-		

Name of the instrument/equipment/machine

Description : Shrink Wrapping machine

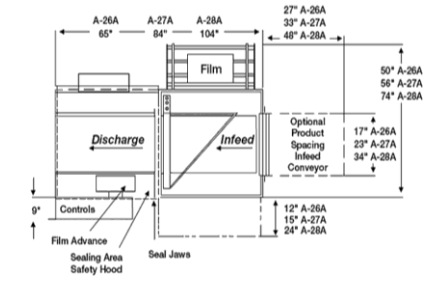
Make: OSAW Agro Industry

Model: Laboratory type

Specification: The machine has heaters and a tunnel with conveyer rods. Speed of conveyer rods and temperature of tunnel is adjustable. The thin film shrinks due to heat, air is removed and a sort of sterile packing occurs.



Working principle: Shrink wrapping is a process in which a product item or group of items is wrapped in loose plastic film and under high temperature heating, the film shrinks tightly and takes the shape of that product. Heating is done for a small period mediated by heaters fixed in the working hot shrink tunnel. Products come out via conveyer rods.



Applications

1. Wrapping of fruits and vegetables and other products using different packaging films like PVC, PE and LDPE of various thicknesses
2. Helpful in packaging of food items fresh as well as processed

User instructions

1. Wrap the commodity in suitable packaging material
2. Turn on the machine; set the heating temperature and speed of conveyer rods as per commodity after standardization
3. Place the wrapped commodity in hot shrink tunnel
4. Collect shrink wrapped commodities at another end
5. Turn off the equipment after use

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Phone: 01634-224024, FAX : 01634-225313

Charges: 362/- per hour/15 kg samples; cost of wrapping material will be extra as per actual basis

	Cost , Rs.	GST, Rs.	Total cost, Rs.
Farmers	434/-		
Students	471/-		
Other national laboratories/ R&D organizations	507/-		
Industries	543/-		

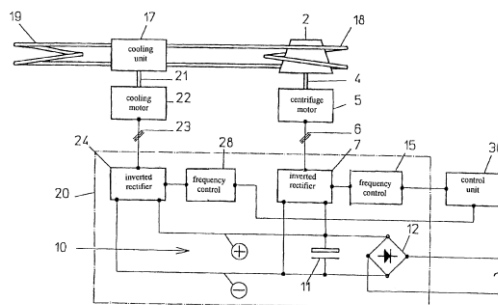
Name of the instrument/equipment/machine

Description : Refrigerated centrifuge
Make: ELTEK,
Model: RC 8100 SF

Specification: Machine with a compressor and fixed angle rotor having maximum speed of 7000 rpm



Working principle: Centrifuge involves principle of sedimentation where the acceleration at centripetal force causes denser substances to separate out at radial direction towards bottom of the centrifuge tube. Various denser particles separate according to their size, shape, density, rotor speed and viscosity of medium.



Applications

1. For isolating and separating suspensions and immiscible liquids
2. DNA preparation; macromolecular separation
3. Removal of unwanted debris
4. For making clear solutions to be used analytically in spectrophotometer, HPLC, GLC etc.

User instructions

1. Switch on the instrument; place the samples in centrifuge tubes
2. Place centrifuge tubes having equal weight opposite to each other; close rotor cap and lid
3. Set rotor name, speed, time and temperature
4. Start the equipment

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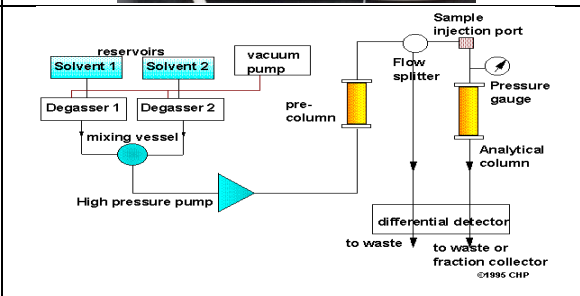
Charges: 331/- per hour/ 12 samples			
	Cost , Rs.	GST, Rs.	Total cost, Rs.
Farmers	397/-		
Students	430/-		
Other national laboratories/ R&D organizations	463/-		
Industries	497/-		

Name of the instrument/equipment/machine

Description : High pressure liquid chromatography
Make: HITACHI
Model: ELITE LaChrom-2000
Specification: HPLC with C-8 and C-18 columns, diode array detector, auto-sampler, peristaltic pump and column oven; one point control software operated.



Working principle: Chromatography employs a biphasic system: mobile and stationary phase to separate mixture of substances into their components based on their molecular structure and composition. In HPLC, mobile phase is forced through a column under high pressure. The components of a mixture separate due to difference in the relative affinities of different molecules for mobile and stationary phases.



Applications

1. To analyze samples having minute quantity with accuracy
2. To identify, quantify and purify particular compounds
3. Has application in pharma, food, soil, residue testing and in clinics

User instructions

1. Switch on HPLC and its software; make the pump on
2. Create a method; make necessary entries of the method and save it for use
3. Purge the system before operation for 15 min
4. Pour highly clear, membrane filtered (0.25/0.45 μm) samples in sample vials and place them in sample plate
5. Close the valve; select method and sample table and apply run
6. After completion of experiment(s), let the equipment run for 15 min
7. Finally switch-off pump and then software and equipment sequentially

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Charges: 360/- per hour/ one sample. Cost of chemicals will be extra as per actual basis

	Cost , Rs.	GST, Rs.	Total cost, Rs.
Farmers	432/-		
Students	468/-		
Other national laboratories/ R&D organizations	504/-		
Industries	540/-		

Name of the Equipment/Instrument: Texture Analyzer

Name of Division/Section: HCP/Lab

	Head	Calculation
1.	Manpower Charge	320/-
2.	Chemical Charge	Nil
3.	Electricity & Water Charge (Lump Sum)	7
4.	Report writing/printing	20
		Total- 347/-

1. For farmers may be added with 20% extra
2. For students may be added with 30% extra
3. For other national laboratories/ R& D institutions 40% extra
4. For Industries 50% extra

Charges			
	Cost , Rs.	GST, Rs.	Total cost, Rs.
Farmers	416/-		
Students	451/-		
Other national laboratories/ R&D organizations	486/-		
Industries	520/-		

Signature of the Head/I/c Head of the Division/Section

- Rates are for one hour/10 samples

Name of the Equipment/Instrument: Spectrophotometer

Name of Division/Section: HCP/Lab

	Head	Calculation
1.	Manpower Charge	320/-
2.	Chemical Charge	As per actual cost
3.	Electricity & Water Charge (Lump Sum)	7
4.	Report writing/printing	20
		Total- 347

1. For farmers may be added with 20% extra
2. For students may be added with 30% extra
3. For other national laboratories/ R& D institutions 40% extra
4. For Industries 50% extra

Charges			
	Cost , Rs.	GST, Rs.	Total cost, Rs.
Farmers	416/-		
Students	451/-		
Other national laboratories/ R&D organizations	486/-		
Industries	520/-		

Signature of the Head/I/c Head of the Division/Section

- Rates are for one hour/10 samples

Name of the Equipment/Instrument: Microscope

Name of Division/Section: HCP/Lab

	Head	Calculation
1.	Manpower Charge	320/-
2.	Chemical Charge	4
3.	Electricity & Water Charge (Lump Sum)	3
4.	Report writing/printing	20
		Total- 347/-

1. For farmers may be added with 20% extra
2. For students may be added with 30% extra
3. For other national laboratories/ R& D institutions 40% extra
4. For Industries 50% extra

Charges			
	Cost , Rs.	GST, Rs.	Total cost, Rs.
Farmers	416/-		
Students	451/-		
Other national laboratories/ R&D organizations	486/-		
Industries	520/-		

Signature of the Head/I/c Head of the Division/Section

- Rates are for One hour/10 samples

Name of the Equipment/Instrument: Head Space Analyzer

Name of Division/Section: HCP/Lab

	Head	Calculation
1.	Manpower Charge	320/-
2.	Chemical Charge	5
3.	Electricity & Water Charge (Lump Sum)	7
4.	Report writing/printing	20
		Total- 352/-

1. For farmers may be added with 20% extra
2. For students may be added with 30% extra
3. For other national laboratories/ R& D institutions 40% extra
4. For Industries 50% extra

Charges			
	Cost , Rs.	GST, Rs.	Total cost, Rs.
Farmers	422/-		
Students	458/-		
Other national laboratories/ R&D organizations	493/-		
Industries	528/-		

Signature of the Head/I/c Head of the Division/Section

- Rates are for One hour/10 samples

Name of the Equipment/Instrument: Shrink Wrapping machine

Name of Division/Section: HCP/Lab

	Head	Calculation
1.	Manpower Charge	320/-
2.	Chemical Charge	As per actual cost
3.	Electricity & Water Charge (Lump Sum)	42/-
4.	Report writing/printing	-
		Total- 362/-

1. For farmers may be added with 20% extra
2. For students may be added with 30% extra
3. For other national laboratories/ R& D institutions 40% extra
4. For Industries 50% extra

Charges			
	Cost , Rs.	GST, Rs.	Total cost, Rs.
Farmers	434/-		
Students	471/-		
Other national laboratories/ R&D organizations	507/-		
Industries	543/-		

Signature of the Head/I/c Head of the Division/Section

- Rates are for One hour/15 kg samples

Name of the Equipment/Instrument: Refrigerated Centrifuge

Name of Division/Section: HCP/Lab

	Head	Calculation
1.	Manpower Charge	320/-
2.	Chemical Charge	-
3.	Electricity & Water Charge (Lump Sum)	11/-
4.	Report writing/printing	-
		Total- 331/-

1. For farmers may be added with 20% extra
2. For students may be added with 30% extra
3. For other national laboratories/ R& D institutions 40% extra
4. For Industries 50% extra

Charges			
	Cost , Rs.	GST, Rs.	Total cost, Rs.
Farmers	397/-		
Students	430/-		
Other national laboratories/ R&D organizations	463/-		
Industries	497/-		

Signature of the Head/I/c Head of the Division/Section

- Rates are for One hours/12 samples

Name of the Equipment/Instrument: High Pressure Liquid Chromatography

Name of Division/Section: HCP/Lab

	Head	Calculation
1.	Manpower Charge	320/-
2.	Chemical Charge	As per actual cost
3.	Electricity & Water Charge (Lump Sum)	20/-
4.	Report writing/printing	20
		Total- 360/-

1. For farmers may be added with 20% extra
2. For students may be added with 30% extra
3. For other national laboratories/ R& D institutions 40% extra
4. For Industries 50% extra

Charges			
	Cost , Rs.	GST, Rs.	Total cost, Rs.
Farmers	432/-		
Students	468/-		
Other national laboratories/ R&D organizations	504/-		
Industries	540/-		

Signature of the Head/I/c Head of the Division/Section

- Rates are for per hour/01 sample