

Second Supplement of the Revised Guidelines on the Credit Linked Capital Subsidy Scheme (CLCSS) for Technology Upgradation of Micro and Small Enterprises approved by the Technical Sub-Committee on the CLCSS (TSC) in its 7th meeting held on the *13th day of July, 2009* under the chairmanship of the Additional Secretary & Development Commissioner (MSME)

Office of the Development Commissioner (MSME), Ministry of Micro, Small and Medium, Enterprises Government of India, Nirman Bhawan, New Delhi

INDEX

<u>Sr. No.</u>	<u>Technology Need</u>	<u>Page No.</u>
	Technologies	1-19

ii): Common Effluent Treatment Plant:

Deleted.

iv: Drugs & Pharmaceuticals :

(iv)(a)

List of Machineries/ Equipments Recommended for Drug And Pharmaceutical Products, Sub-Sector-Wise (Including the Existing Technologies In The CLCSS) Required for Schedule 'M' Compliance and Indian/International Standards for Inclusion At S. No. IV in the Credit Linked Capital Subsidy Scheme For Technology Upgradation.

S. No.	Activity	Technology Need	Approx. Cost (Rs. lakh)	Advantages
External Preparations				
1.	Mixing and Storage	Reactor	3-4.0	WHO-GMP Compliance Better Quality
2	Reaction	Reactor	2-2.5	--do--
3.	Mixing	Vessel	3-3.5	--do--
4	Planetary Mixing	Mixture	3-3.5	--do--
5	Colloidal Milling	Emulsifier	0.6-0.9	--do--
6	Milling	Ointment Mill	1-1.5	--do--
7	Liquid filling	Filling Machine	2-2.5	--do--
8	Filling	Jar Filling Equipment	1.5-2.0	--do--
In Oral Liquid Preparation				
9	Stirring	Agitator	0.3-0.5	--do--
10	Colloidal Milling	Colloidal Mill	0.3-0.5	--do--
11	Filtration	Filter	0.3-0.5	--do--
12	Pill proof capping	Capping machine	1-1.2	--do--
13	Clarity testing	Inspection unit	0.2-0.3	--do--
14	Mixing	Reactor	4-8	--do--
15	Reaction	Reactor	2-3	--do--
16	Bottle Filling	4 head filling machine	2-3	--do--
17	Distillation	Distillation unit	4-5	--do--
Tablets				
18	Dispensing	Reverse laminar flow equipment	1.5 - 2.0	Safety of personnel
19	Storing	Storage Cabinet	0.5-0.8	Storage
20	De-Dusting of Tablet	On-line de-duster	0.4-0.6	GMP
21	Dissolution test	Lab testing apparatus	1-1.2	Quality testing
22	Sifter	24 Dia Sifter	0.8-1.0	WHO-GMP Compliance
23	Powder Mixing	Blender	2-2.5	--do-
24	Mass Mixing	R MG	3-5	--do-
25	Granulation	Roller Compactor	1.5-3	--do-
26	Weighing	Balance	0.8-1	
27	Thermostatically controlled hot air	T D	2-3	--do-

28	Tablet compression	16 station rotary tablet machine	2.0 – 3.0	Increased productivity
		27 station rotary tablet machine	3.25 – 4.0	
29	Tablet Inspection	Inspection Table	1-1.2	--do-
30	In process testing	Lab instruments	2-2.5	--do-
31	AHU	AHU	15-17	GMP
32	Strip/blister packing	Strip/blister packing machine	6-9	Production
33	Leak testing	Vacuum leak tester	1-1.2	Analysis
34	Table Counter	Counter	0.3-0.5	Packing
35	AHU	Dehumidifier	8-10	GMP
36	Reaction	Reactor	2-3	WHO-GMP Compliance
37	Coating	Coating Pan	1.5-3	--do--
38	Exhaust System	Dust Extractor	0.3-0.5	--do--
39	AHU	Dehumidifier	8-10	GMP
40	Weighing	Balance	0.8-1	GMP
41	Disintegration	Multi mill	1-1.5	Production
42	Powder Mixing	Blender	2-2.5	--do-
43	Sifter	24”Dia Sifter	0.8-1.0	--do-
44	Vessels	SS vessels & scoops	0.2-0.9	--do-
45	Filling	Filling machine	4-6	--do-
46	Weighing	Balance	0.8-1	--do-
Capsules				
47	Mixing	Blender	2-2.5	Production
48	Filling	Capsules filling machine	8-15	--do-
49	Counter	Capsules Counter	1-1.2	--do-
50	Weighing	Balance	0.8-1	--do-
51	Disintegration	Disintegration Tester	0.4-0.6	--do-
52	Capsules polishing	Polishing equipment	2-3	--do-
Surgical Dressing				
53	Rolling	Roller machine	2-2.5	--do-
54	Trimming	Trimming machine	1-2	Q
55	Cutting	Cutting equipment	1-2	
56	Folding & pressing	Folding & pressing machine	2-3	--do-
57	Mixing	Medicating processing tanks	2-3	--do-
58	Heating	Dry steam sterilizer	10-15	--do-
59	Air heating	Oven	1-2	--do-
60	Working place	Tables	1-2	--do-
61	Steam Sterilization	DHS	10-18	--do-
Ophthalmic Preparations				
62	Heating	Temp controlled Oven	4-5	WHO-GMP Compliance
63	Reaction	Reactor	2-3	--do-
64	Mixing	Reactor	4-8	--do-
65	Colloidal milling	Ointment mill	1-1.2	--do-

66	Tube filling	Crimping Equipment	1-4	--do--
67	Cleaning	Tube cleaning	0.8-1	WHO-GMP Compliance
68	Automatic washing	Tube washing machine	1-3	--do--
69	Drying	Oven	2-4	--do--
70	Automatic vial washing	Vial washing machine	1-3	--do--
71	Washing	Rubber bungs washing	2-3	--do--
72	Filter	Cartridge candle filter	1.5-3	--do--
73	Liquid filling	Liquid filling machine	2-5	--do--
74	Sterilization	Ventilator autoclave	2-6	--do--
75	AHU	Dehumidifier	8-10	GMP
76	Laminar flow	Laminar air flow unit	1-1.5	Sterility
Peccaries and Suppositories				
77	Mixing	Reactor	1-1.5	--do--
78	Moulding	Moulding equipment	1-1.2	--do--
79	Weighing	Balance	1-1.5	--do--
Inhalers & Vitrallae				
80	Mixing	Reactor	1-2	--do--
81	Measuring	Graduated measuring equipment	1-2	--do--
82	Sealing	Sealing machine	1-1.2	--do--
Repacking of Drugs & Pharmaceutical Chemicals				
83	Powder disintegration	Powder disintegrator	1-1.2	--do--
84	Sieving	Sifter	1.5-2	--do--
85	Scoops	Scoop	0.2-0.3	--do--
86	Weighing	Balance	1-1.5	--do--
87	Filling	Filling machine	2-2.5	--do--
88	Pill proof capping	Capping machine	1-1.2	--do--
89	Sealing	Sealing machine	0.3-0.5	--do--
90	Water lines	SS pipes	3-5	--do--
Parental Preparation				
91	De-ionization	Ion exchange unit	12-15	--do--
92	Distillation	Triple effect evaporators	4-5	Sterility
93	Water storage	Thermal controlled reactor	3-5	--do--
94	Pumping	Pump	2-3	--do--
95	Piping	SS Lines for Water	4-6	--do--
Container & closer preparation				
96	Automated Rotary	Ampoule washing machine	5-7	--do--
97	Washing	Closure washing Machine	2-3	--do--
98	Storage	Storage cabinet	2-3	--do--
99	Storage benches	SS benches	2-3	--do--
100	Automatic vial washing	Vial washing machine	4-5	--do--
101	Rubber bung washing	Rubber bung washing machine	1-3	--do--
Solution preparation				
102	Stirring	Agitator	0.3-0.5	--do--
103	Filtration	Filter	2-3	--do--

104	Pumping	Pump	2-3	--do--
105	Benches	SS benches	1-2	--do--
106	Preparation tank	Reactor	2-4	--do--
Filling capping				
107	Ampoule filling	Ampoule/vial filling machine	3-5	--do--
108	Gas lining	SS pipes	2-4	--do--
109	Benches	SS Benches	1-2	--do--
110	Pressure leak testing	Pressure leak Test equipment	1-1.2	--do--
111	Steam Sterilizer	Autoclave	10-12	--do--
112	Dry heat sterilizer	DHS	14-18	--do--
113	Quarantine area	Room storage	4-7	--do--
114	Platforms	SS Platforms	2-4	--do--
115	Visual inspection	Belt Type inspection table	1-3	--do--
116	Benches	SS benches	1-1.5	--do--
Parental Preparations in Plastic Containers				
117	DM water	Ion exchange unit	12-15	WHO-GMP Compliance
118	Distillation	Triple effect evaporators	4-5	Sterility
119	Water storage	Thermal controlled reactor	3-5	--do--
120	Pumping	Pump	2-3	--do--
121	Water transportation	SS lines for water	4-6	--do--
Solution preparation area				
122	Pumping	Pump	2-3	--do--
123	Water storage	Thermal controlled reactor	3-5	--do--
124	filtration	Membrance filter	1-2	--do--
125	Sterile filling	Sterile filling machine	2-3	WHO-GMP compliance
126	Filling	Plastic filling machine	2-3	Process
127	Batch coding	Batch coding Machine	1-1.2	--do--
128	Labeling	Labeling machine	2-3	--do--
129	Batch coding	Batch coding Machine	1-1.2	--do--
130	Labeling unit	Labeling machine	2-3	--do--
131	Automatic vial washing	Vial washing machine	4-5	--do--
132	Vial drying	Oven	2-4	--do--
133	Autoclave	Autoclave	4-5	--do--
134	Laminar flow	Laminar air flow unit	1-1.5	Sterility
135	AHU	HVAC	10-15	--do--

Bulk Drugs

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	Weighing	Automatic electronic balance 300 kg.; 150 kg and 1 kg.	0.5 to 2.0 depending on the model	Accurate weighing of raw materials; Increased productivity.
2	Reaction	MS, SS, MS/GL Lead/ RL linned Reaction Vessel	25	Suitable for process
3	Filtration	Centrifuge, Nutch filter, Vacumm filter, filter press, Pressure filter SS, MS/GL	15	Suitable for process
4	Distillation Unit	SS Distillation Unit	15	Solvent quality Reusable
5	Dryer	TD, VTD, Nauta dryer, Rotatory Vacuum, SS Dryer with modern facilities, spray / flash	15	Quality upgradation
6	Storage tanks	MS, SS, MS/RL Storage tanks	10	Avoid mixing
7	Pumps	Centrifugal, Rotopump	5	Process
		Multistage		Handling
8	Powder Processing	Multimill, vibrator, blender, Coating	10	Quality Requirements
9	Scrubber	Glass/MS/RL	5	Environmental Improvement
10	Laboratory Equipments	HPLC, FTIR, UV, Kf testing, HTTLC	35	Quality Requirements
11	Mixing	Blenders	5	For uniformity of the product
12	Micronisation	Jet mill, pulverizer	25	For better dissolution rate
13	Compacting	Roll compacter	15	For increasing bulk density of the product
14	Distillation	SS Condensers	10	For improving recovery of solvents and uniform reaction
15	Raw material and finished product weighing.	Electronic Weighing Machine.	0.15	1. Saving of time. 2. Saving of labour. 3. No loss of material. 4. Increase in the profitability.
16	Quality control.	Laboratory Equipment of latest technology, spectrophotometer, Gas Chromatograph & others. ITR,	10	1. To get the best possible precise results. 2. Less time consuming & immediate results display.
17	Pulverisation.	Latest technology pulverisers Impact	4	1. Quality of products improves due to finest

		Type.		particles. 2. Physical loss of material is very less
18	Heating	Boilers	10	For heating
19	Power	DG Set	10 – 15	For uninterrupted power during process
20	Chilling	Chilling units, cooling towers. WAS systems	25 – 50	To maintain process parameters
21	Instrumentation	Online PH meters, temperature meters	5	To maintain process parameters
22	AHU	Air conditioning & Rh control	25	Quality up gradation
23	Chilling	Cooling water, Chilled Water Chilled brine, air, water, VAS system	30 – 45	To maintain process conditions Parameters
24	Accurate Weighing	Digital balances,	1	For accuracy
26	Non-reactive Storage Tanks	Storage Number & size to depend on operation	1 – 8 lacs	For handling of pharmaceuticals in- process
27	Containers	Storage Containers Number & size to depend on operation	1 – 5	Material Handling
28	Process Instruments	Measuring temperature, pressure	2 – 5 lacs	Process control
29	Pumps	Centifugure, vaccum	5	Atomization
Quality Control Department				
30	Dispensing	Reverse laminar flow equipment	1.5 – 2	Safety of personnel
31	Weighing	Automatic electronic balance 300 kg.; 150 kg. and 1 kg.	0.5 to 2.0 depending on the model	Accurate weighing of raw materials; Increased productivity.
32	Drug assay and testing	HPLC, HPTLC, FTIR, automatic titratator, pH meter, melting point, karl fisher instrument Gas Chromatograph, small rato evaporator system with vacuum pump Tablet hardness tester, Dissolution test apparatus, Disintegration test apparatus, UV Spectroscope,	20 – 40	Accurate drug analysis

		Laminar Flow benches, TLC/FID detector		
33	Microbiological Lab in Quality Control Department.	1) B.O.D. Incubators. 2) Incubators. 3) Laminar Air Flow. 4) AHU 5) Oven 6) Ozone reader 7) Auto Clave 8) Microscopes	10	These machines are required to improve the quality of the finished products by way of testing.
34	Stability chambers	Two stability chambers at 40° & 25° with alarm bell and printer	7 lacs	
Environment Control Devices.				
35	Weighing	Automatic electronic balance 300 kg.; 150 kg. and 1 kg.	0.5 to 2.0 depending on the model	Accurate weighing of raw materials; Increased productivity.
36	Air conditioning and humidity control of all types of areas	Air conditioning Humidity control equipment (Dehumidifier)	10.0 – 30.0	Improve product stability, enhance personal comfort
37	Air handling for parenteral (Sterile) area	Air handling unit with HEPA filters, Ducting with insulation; Chilled water piping; electrical cabling and panels; Chilled water pump; Chilled water control	15.0 – 40.0	Improves product quality, enhanced personal safety
38	Air handling other for parenteral area	Air handling unit with 5 micron filters,	10.0 – 15.0	Improves product quality, enhanced personal safety
39	Miscellaneous fittings	Ducting with insulation; chilled water piping; electrical cabling and panels; chilled water pump; chilled water control	5.0 – 6.0	Improves product quality, enhanced personal safety
40	Energy Generation	DG	2.0 – 12.0	For continuous Production
41	Pollution control	Effluent Treatment Pollution Control machinery	10.0 – 15.0	Biochemical treatment of effluent removes 90 to 95% of soluble organic matter in the waste

42	Recovery	Reverse osmosis plant, Scrubbers	10	To improve discharge or waste water
43	Pollution control	Incinerators	20	For solid waste disposal
44	Cleaning	Vacuum cleaner and scrubbers	2	For maintaining cleanness as required Schedule M

(vii) Plastic Moulded/Extruded Products and Parts/ Components including reinforced plastic/composite material

(vii)(e) Printed lamination/multilayer Plastic films

Sl No	Activity	Technology need	Cost Rs in lakh	Advantages
1.	Rotogravure Printing	Rotogravure Printing Machine having upto 8 colour printing machine with web guiding system, in-feed, out-feed, digital five drive system.	Upto 50.00	Enhance printing quality, speed, less rejection, and high productivity
2.	-do-	Diesel operated hot air heaters with web	2.0	-do-
3.	Lamination	Adhesive base lamination machine	Upto 15.00	Better quality & high efficiency.
4.	-do-	Diesel operated hot air heaters	2.00	-do-
5.	Multi layer film	Fully automatic micro process controlled plastic extrusion machine to manufacture film from two layers to five layers, air compressor, water pump, chilling plant, static remover	Upto 75.00	Better quality & high efficiency and improved productivity

(vii) Plastic Moulded/Extruded Products and Parts/ Components including reinforced plastic/composite material

(f) Intra ocular lens

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Intra ocular lens: Manufacture of sterile device intended for the external or internal use in human eyes(sight saving device)	1. Mill/Lathe combination system for making cataract lenses . 2. Accessories to enable Lathe and Milling Machine workable at 15 degree Celsius.	90.5 (Including import duty charges) 12.25 (Including import duty charges)	<ul style="list-style-type: none">• Leads automation• Energy saving• More accuracy• High efficiency in production• Improvement in Quality• Low Rejection• Low pollution• Easy operation and less labour cost.

ix – Food Processing(Including Ice Cream Manufacturing)**ix(a) Food Processing:**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantage.
5.1	Rice Milling (Post Colour Sorting Segregator in Rice Mills)	Reverse Colour Scanner-Optical	20	It will reduce wastage and provide better productivity.

ix– Food Processing(Including Ice Cream Manufacturing)**ix(d) – Rice Flakes/Chiwra(Poha) and Murmura(Puffed Rice)**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantage.
1.1	Rice Flakes/Chiwra(Poha) and Murmura(Puffed Rice) Roaster	Thermic Fluid Heated Rotor Roaster	6	It will provide uniform temperature to the roaster, better quality product, improved productivity, energy efficient and less air pollution.

xiv– Electronic equipment viz. test, measuring and assembly/manufacturing, industrial process control; Analytical, Medical, Electronic Consumer & Communication equipment etc.

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantage.
2.	Assembling/Manufacturing	1. Computerized Automatic Pick and Place Machine 2. Full Convection reflow oven 3. Solder paste printer 4. On-line UPS 5. Air-compressor 6. Airconditioner	33	Automated assembly of SMT component on both side of PCB in small space at faster rate

xxi- Auto parts and components including re-refining of lubricating oil

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantage.
3(a)	Splined Worm Gear(Auto Component)	Broaching Machine with automatic retrieves system with self releasing broach holder	10	<p>i). Fast and Efficient Machine</p> <p>ii). Self releasing broach holder for quick of the broaching tool from the holder, it save time</p> <p>iii) Automatic retriever system of tool otherwise it has to manually lifted and fitted to the machine, which results in worker's fatigue. The new system eliminates physical work of lifting and loading of tool. For making many components, this saves lot of time and increases productivity</p>

xxi- Auto parts and components including re-refining of lubricating oil

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantage.
6	Re-refining of Lubricating Oil	(c)Thin Film Evaporation Process	As per prevalent market rates	Eco-friendly technology
		(d) Vacuum Distillation with Clay Treatment	do	do
		(e) Vacuum distillation with hydro treating	do	do

xxvi General Engineering Works

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantage.
1(a)	CNC Cylindrical Grinding Machine	CNC Cylindrical Grinding Machine for manufacturing precision machined parts under General Engineering for multiple uses including Gears/Motors for lift	23-30	<ul style="list-style-type: none"> i. Upgraded improved technology. ii. Automatic CNC Machine iii. Suitable for precision cylindrical grinding jobs. iv. Can be used for wide variety of parts where precision and accuracy is needed in cylindrical grinding . v. Plunge & transverse operation can be done in same set up of the machine.

xxvii: Gold Plating and Jewellery:**(c) Jewellery Making**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantage.
1.	Jewellery Making	a) Vibrating Machine	4-4.2	Fast Technology, Less operating cost and less wastage
		b) Big Ball Machine	16-16.25	Do
		c) Ice Lathe & Refrigeration unit	1-2	Do
		d) High-Speed Venetion chain making machine	10-10.5	Do
		e) CNC Diamond Cutting Machine	18-19	Do
		f) 7 Heads Forming Machine	13-13.5	Do

xxxv: Wooden Furniture:

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantage.
1.	Wood Seasoning			
		Vacuum & high frequency seasoning Plants	23-30	For Part seasoning of Wood
		Solar Power based wood seasoning plant	10-25	Fast & Low cost Seasoning

(xxxxvii) Printing Industry:

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
8.7	Printing Section	5 colour offset machine 19"x26" and size 28"x40"	400	Five colour in one operation and speed
8.8		Flexo printing press 1/2/4 colour offset m/c L-10"-8 colour	300	Speed Quality & less wastage