

TABLE 1. TEMPERATURES AND HUMIDITIES APPLICABLE TO INDUSTRIAL AIR CONDITIONING—(Continued)

PROCESS	TEMP. F	R.H. %
PAINT APPLICATION		
Lacquers:	70-90	60
Air drying.....	180-300	
Baking.....		
Oil Paints:	60-90	60
Air drying.....	75	
Paint Spraying.....		

Spray booths to have 100 fpm face velocity. Make-up air must be preheated. Ovens must have air removed to keep fumes below explosive concentration. Equipment must be explosion-proof throughout.

ROOM OR PROCESS	TEMP. F	R.H. %
PHARMACEUTICAL		
Powder storage (prior to mfg.).....	70 to 80	30 to 35
Manufactured powder storage and packing areas.....	75 to 80	15 to 35
Milling room.....	80	35
Tablet compressing.....	70 to 80	35
Tablet coating room.....	80	40
Effervescent tablets and powders.....	90	15
Hypodermic tablets.....	75 to 80	30
Colloids.....	70	30 to 50
Cough syrups.....	80	40
Glandular products.....	75 to 80	5 to 10
Ampule manufacturing.....	80	35
Gelatin capsules.....	78	40 to 50
Capsule storage.....	75	35 to 40
Micro-analysis.....	80	50
Biological manufacturing.....	80	
Liver extracts.....	70 to 80	20 to 30
Serums.....	74 to 78	50
Animal rooms.....	75 to 80	40
Small animal rooms.....	75 to 78	47 to 48

Gelatin capsules require varying relative humidities, depending upon size of capsule. Moisture content should not exceed 0.25 gr per cu ft. Various kinds of gelatin require different temperatures.

Penicillin incubation process requires holding temperature within $\frac{1}{2}$ deg F, with temperatures and humidity rigidly controlled during all manufacturing phases.

Ampule filling requires a 20 percent relative humidity when especially fine powders are used.

Uncoated tablet manufacturing requires accurate control of temperature and relative humidity, since low relative humidity causes formation of a hard outer layer, and high relative humidity retards drying at the proper rate.

Liver extracts require a low relative humidity after they are dried. Temperatures higher than 80 F will cause the extracts to deteriorate.

Tablet coating requires the control of the temperatures of all ingredients and the temperature of air introduced to coating pans.

Sterile conditions are essential in many pharmaceutical processes. Provide suitable air exhaust to remove surplus material from tablet compressing machine.

Air filtration is generally required, with positive air filtration in some areas.

ANIMAL ROOMS IN PHARMACEUTICAL LABORATORIES

In the following tabulation each of the items mentioned is equivalent in metabolism to one man:

QUANTITY	ANIMAL	WEIGHT EACH
672	White Mice	21 g
110	Rats	200 g
73	Rats	400 g
70	Guinea Pigs	410 g
21	Rabbits	2.6 kg
16	Cats	3.0 kg
16	Monkeys	3.0 kg
5	Dogs	14.0 kg

Dogs are generally the worst offenders as far as odor generation is concerned.

Decontamination of exhaust air is recommended in populated areas.

For good air quality conditions the following space per animal and total air circulation (all outdoor or decontaminated in recirculation) should be provided:

Animal	cu ft	cfm
Mice	3	0.5
Rats	4	0.75
Guinea Pigs	6	1.0
Rabbits	10	1.9
Hamsters	8	1.5
Cats	35	10.0
Dogs	150	28.0

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PROCESS	TEMP. F	R.H. %
PHOTO STUDIO		
Dressing Room.....	74	30-40
Drying Room.....	75-80	50
Printing Room.....	70	70
Setting Room.....	72	65
Developing Room.....	70-75	60
Storage Room.....	60	45

Heat liberated during printing, enlarging and drying processes is removed through an independent exhaust system, which also serves the lamp houses and dryer hoods.

Dust control is essential, and absolute filtration is required in some areas.

PROCESS	TEMP. F	R.H. %
PHOTO MATERIAL		
Drying.....	20-125	40-80
Cutting & Packing.....	65-75	40-60
Film Base & Paper Storage.....	70-75	40-65
Coated Paper & Film Storage.....	70-75	40-65
Safety Base Film Storage.....	60-80	45-50
Nitrate Film Storage.....	40-50	40-50

Spray water must have algae inhibitor. Positive dust control must be maintained and absolute filtration is essential.

In nitrate film area take proper precautions against fires.

Recirculated air used for film drying is passed through activated carbon filters.

Relative humidity for film storage should never exceed 60 percent with a minimum of 25 percent.

PROCESS	TEMP. F	R.H. %
PLASTICS		
Manufacturing areas:		
Thermo setting moulding compounds.....	80	25 to 30
Cellophane wrapping.....	75 to 80	45 to 65

Absolute filtration is required in some areas.

Collection and removal of dust and fumes is essential.

PROCESS	TEMP. F	R.H. %
PLYWOOD		
Hot Pressing (resin).....	90	60
Cold Pressing.....	90	15 to 25

PROCESS	TEMP. F	R.H. %
POULTRY RAISING		
Incubator.....	70-75	30-60
Brooder:		
1st week.....	70-75	60
2nd week.....	50-60	60
Battery room:		
Starting.....	70	70-75
Growing.....	50-60	50-60
Egg storage.....	45-60	70-80

Maximum ventilation is required for laying quarters during the summer months, while an attempt is made to maintain a temperature 10 deg above or below outdoor temperature during the winter, to minimize condensation on the exterior walls. This applies to houses not having forced ventilation systems.

PROCESS	TEMP. F	R.H. %
PRECISION MACHINING		
Spectrographic analysis.....	75-80	45-50
Gear matching & special assembly room.....	75-80	35-40
Gasket storage.....	100	50
Cement & glue storage.....	65	40
Precision parts machining.....	75	45-50