

- Garuda Emblem -

Ministerial Regulation
Standard and Measurement Method of Odour Emission from factory
B.E. 2548 (2005)

Article 1 In this Ministerial Regulation

“Odour” means an air contaminant that is perceived by human’s nose or a testing tool.

“Odourous Sample” means a sample of odorous air taken at the source of odour by methods specified in 4 or 7, as the case may be.

“Odour Concentration” is an odour value which is a ratio of a dilution of the sampling air with odourless air until it becomes odourless. Strong odour has high odour concentration since it needs high amount of odourless air for dilution. Odour concentration shall be analyzed by sensory test as specified in Article 7.

“Industrial Zone” is an area that is designated as industrial land as specified by the city planning law or as industrial estate as specified by the law of the Industrial Estate Authority of Thailand, or as industrial zone as specified by the factory law.

“Residential Area Zone” is an area that is not specified as an industrial zone.

Article 2 This Ministerial Notification shall be enforced the factory specified in the list attached.

Article 3 The factory is not allowed to emit odour emission except the emission is treated by any method(s) excluding the dilution method until the odour concentration value does not exceed the standard value specified in Article 4.

Article 4 The odour concentration of an odourous sample shall not exceed the below table.

Factory’s location	Odour concentration standard value at the factory’s boundary line or inside the factory’s area	Odour concentration standard value at the stack
Industrial Zone	30	1,000
Residential Area Zone	15	300

Measurement of odour concentration value at the factory’s boundary line or inside the factory’s area shall be conducted by taking an odourous sample at a point where it is about 1 meter away from the factory’s boundary line and is located downwind. Measurement of odour concentration value at the stack shall be conducted by the method specified in Article 7.

Article 5 Department of Industrial Works shall conduct a measurement of odour concentration value when a complaint is made or when the department suspects that the factory's odour emission may exceed the standard value as specified in Article 4, with the exception of the measurement of odour from factories contained chemical substances that may be harmful to the panelist's health or no panelist available.

Article 6 Department of Industrial Works is authorized to designate one odour testing panel or more to conduct a measurement of odour concentration by the method as specified in this Ministerial Regulation.

The factory licensee or related person shall have a duty to facilitate the work of an odour testing panel as mentioned in the first paragraph of this Article.

Article 7 Measurement of odour concentration specified in Article 4 shall be conducted by the method specified by the American Society for Testing and Materials (ASTM) or the Japanese Industrial Standards (JIS), or other methods designated in the Royal Gazette by the minister.

Article 8 This Ministerial Notification shall come into force after the lapse of a period of 1 year from the publication in the Royal Gazette onwards.

11 April 2005

- Signature -

Mr. Watana Muangsuk

Minister of Industry

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List of the Factory Enforced by the Ministerial Regulation on “Standard and Measurement Method of Odour Emission from factory B.E. 2548 (2005)”

No.	Type	Type of Factory	Group 1	Group 2	Group 3
1	1	Factory engages in business related to ripening of tea leave or tobacco leave	-	Machine \leq 50 horsepower	Machine > 50 horsepower
2	2	Factory engages in business related to agricultural products as follows:			
		(1) Boiling, steaming or roasting of plants or seeds	-	Machine \leq 50 horsepower	Machine > 50 horsepower
		(2) Shelling seeds	-	Machine \leq 50 horsepower	Machine > 50 horsepower
		(3) Pressing hems or tobacco leave	-	Machine \leq 50 horsepower	Machine > 50 horsepower
		(4) Cotton ginning or pressing; kapok spinning or pressing	-	-	All sizes of factory
		(5) Storage or conveying plants, seeds, or product of plants in a silo or warehouse	-	-	All sizes of factory
		(6) Grinding or crushing plants, which are not seeds or root vegetables	-	Machine \leq 50 horsepower	Machine > 50 horsepower
		(7) Coconut shell charcoaling; or charcoal grinding or packaging	-	-	All sizes of factory

		(8) Growing mushrooms, orchids or bean sprouts	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(9) Panning, washing, selecting, sizing or grading of agricultural products	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(10) Preservation of agricultural products by radiation	-	-	All sizes of factory
		(11) Egg hatching by incubator	All sizes of factory	-	-
3	4	Factory engages in business related to animals, which is not aquatic animals, as follows			
		(1) Slaughterhouse	-	-	All sizes of factory
		(2) Preservation of meat by roasting, smoking, salting, fermentation, sun-drying, quick-freezing, or desiccation	Machine ≤ 20 horsepower and workers ≤ 20 persons, whichh do not use wood, sawdust or husk as fuel	Machine ≤ 50 horsepower and workers ≤ 50 persons, whichh do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory whichh use wood, sawdust or husk as fuel
		(3) Producing prepared food from animal meat, fat, skin, or substances extracted from animal wax or bone	-	Machine ≤ 50 horsepower and workers ≤ 50 persons, whichh do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory whichh use wood, sawdust or husk as fuel

		(4) Extract of edible oil or fat from animal; or purifying edible oil or fat	-	Machine ≤ 50 horsepower and workers ≤ 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory which use wood, sawdust or husk as fuel
		(5) Vacuum-packing of animal meat or fat; or ready-cooked products of meat or fat	-	Machine ≤ 50 horsepower and workers ≤ 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory which use wood, sawdust or husk as fuel
		(6) Cleaning, butchering, shelling, boiling, steaming, frying or mincing animals or parts	-	Machine ≤ 50 horsepower and workers ≤ 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory which use wood, sawdust or husk as fuel
		(7) Prepared egg products such as salted egg, a hundred-year-old egg, powdered egg, frozen liquid egg, or chilled liquid egg	Machine ≤ 20 horsepower and workers ≤ 20 persons, which do not use wood, sawdust or husk as fuel	Machine ≤ 50 horsepower and workers ≤ 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory which use wood, sawdust or husk as fuel

4	5	Factory engages in business related to milk as follows			
		(1) Producing pasteurized or sterilized milk	-	Machine ≤ 50 horsepower and workers ≤ 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory which use wood, sawdust or husk as fuel
		(2) Producing milk from milk powder and fat	-	-	All sizes of factory
		(3) Producing condensed milk, milk powder, or evaporated milk	-	-	All sizes of factory
		(4) Producing cream from milk	Machine ≤ 20 horsepower and workers ≤ 20 persons, which do not use wood, sawdust or husk as fuel	Machine ≤ 50 horsepower and workers ≤ 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory which use wood, sawdust or husk as fuel
		(5) Producing liquid butter or cheese	Machine ≤ 20 horsepower and workers ≤ 20 persons, which do not use wood, sawdust or husk as fuel	Machine ≤ 50 horsepower and workers ≤ 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory which use wood, sawdust or husk as fuel

		(6) Producing yogurt or microorganism-added milk	Machine ≤ 20 horsepower and workers ≤ 20 persons, which do not use wood, sawdust or husk as fuel	Machine ≤ 50 horsepower and workers ≤ 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory which use wood, sawdust or husk as fuel
5	6	Factory engages in business related to aquatic animals as follows	-	Machine ≤ 50 horsepower and workers ≤ 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory which use wood, sawdust or husk as fuel
		(1) Producing food prepared from aquatic animals and vacuum-packing			
		(2) Preservation of aquatic animals by roasting, smoking, salting, fermentation, sun-drying, quick-freezing or desiccating	Machine ≤ 20 horsepower and workers ≤ 20 persons, which do not use wood, sawdust or husk as fuel	Machine ≤ 50 horsepower and workers ≤ 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory which use wood, sawdust or husk as fuel
		(3) Producing ready-cooked food from aquatic animals meat, skin or fat	-	Machine ≤ 50 horsepower and workers ≤ 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory which use wood, sawdust or husk as fuel

		(4) Extracting or purifying edible oil or fat from aquatic animals	-	Machine \leq 50 horsepower and workers \leq 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine >50 horsepower or workers >50 persons; or all sizes of factory which use wood, sawdust or husk as fuel
		(5) Cleaning, butchering, shelling, boiling, steaming, frying or grinding aquatic animals	-	Machine \leq 50 horsepower and workers \leq 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine >50 horsepower or workers >50 persons; or all sizes of factory which use wood, sawdust or husk as fuel
6	7	Factory engages in business related to animal or vegetable oils, or animal fat as follows			
		(1) Extracting oil or fat from vegetables or animals	-	-	All sizes of factory
		(2) Pressing or grinding vegetable or animal residue, which is a result of oil-extraction process	-	-	All sizes of factory
		(3) Producing hydrogenated vegetable or animal oil or animal fat	-	-	All sizes of factory
		(4) Purifying vegetable or animal oil or animal fat	-	-	All sizes of factory
		(5) Producing margarine, cream powder, or mixed cooking oil	-	-	All sizes of factory
7	8	Factory engages in business related to vegetables, plants or fruits as follows			

		(1) Producing food or drink from vegetables, plants or fruits and vacuum-packing	Machine ≤ 20 horsepower and workers ≤ 20 persons, which do not use wood, sawdust or husk as fuel	Machine ≤ 50 horsepower and workers ≤ 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory which use wood, sawdust or husk as fuel
		(2) Preservation of vegetables, plants or fruits by pasting, sun-drying, fermentation, quick-freezing, or desiccation	Machine ≤ 20 horsepower and workers ≤ 20 persons, which do not use wood, sawdust or husk as fuel	Machine ≤ 50 horsepower and workers ≤ 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory which use wood, sawdust or husk as fuel
8	9	Factory engages in business related to seeds or root vegetables as follows			
		(1) Rice milling, winnowing or polishing	Machine ≤ 20 horsepower and do not have a boiler	Machine ≤ 50 horsepower, do not have a boiler, and is not categorized in Group 1	Machine > 50 horsepower or all sizes of factory, which have a boiler
		(2) Producing flour	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower, do not have a boiler, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(3) Seeds or root vegetables grinding, crushing	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons

		(4) Producing ready-cooked food from seeds or root vegetables	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(5) Flour or seeds mixing	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(6) Root vegetables peeling, slicing, cutting	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
9	10	Factory engages in business related to food produced from flour as follows			
		(1) Producing bread or cakes	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(2) Producing crisp bread or dry-baked sweet	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(3) Producing flour food in strings, pellets, pieces	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
10	11	Factory engages in business related to sugar produced from sugar cane, beet, sweet grass, or other sweet plants as follows			

		(1) Producing syrup	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(2) Producing brown sugar	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(3) Producing raw sugar or granulated sugar	-	-	All sizes of factory
		(4) Producing raw sugar or refined sugar	-	-	All sizes of factory
		(5) Producing cubes sugar or icing sugar	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(6) Producing glucose, dextrose, fructose, or other similar products	-	-	All sizes of factory
		(7) Producing sugar from coconut sugar, palm sugar or other plants that is not sugar cane	All sizes of factory	-	-
11	12	Factory engages in business related to tea, coffee, cocoa, chocolate or confectionary as follows			
		(1) Producing dried tea leaf or powdered tea	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(2) Roasting, grinding or crushing coffee, or producing powdered coffee	-	Machine ≤ 50 horsepower and workers ≤ 50 persons	Machine > 50 horsepower or workers > 50 persons

		(3) Producing cocoa powder or sweet prepared from cocoa	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(4) Producing chocolate, chocolate powder or chocolate milk	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(5) Producing chrysanthemum tea powder, ginger tea powder, or drinking powders made from other plants	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(6) Producing tamarind, lemon or fruits tablets	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(7) Sugar-preserved fruits or fruit peels, or sugar-coated fruits or fruit peels	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(8) Roasting nuts or coating nuts with sugar, coffee, cocoa, or chocolate	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(9) Producing chewing gum	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons

		(10) Producing candy or toffee	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
		(11) Producing ice cream	Machine ≤ 20 horsepower and workers ≤ 20 persons	Machine ≤ 50 horsepower and workers ≤ 50 persons, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons
12	13	Factory engages in business related to seasoning or food additives as follows			
		(1) Producing baking powder	-	-	All sizes of factory
		(2) Producing food condiment, seasoning or coloring	-	-	All sizes of factory
		(3) Producing yeast	-	-	All sizes of factory
		(4) Producing vinegar	-	-	All sizes of factory
		(5) Producing mustard	Machine ≤ 20 horsepower and workers ≤ 20 persons, which do not use wood, sawdust or husk as fuel	Machine ≤ 50 horsepower and workers ≤ 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory which use wood, sawdust or husk as fuel
		(6) Producing salad oil	Machine ≤ 20 horsepower and workers ≤ 20 persons, which do not use wood, sawdust or husk as fuel	Machine ≤ 50 horsepower and workers ≤ 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory which use wood, sawdust or husk as fuel

		(7) Grinding or crushing spices	Machine ≤ 20 horsepower and workers ≤ 20 persons, which do not use wood, sawdust or husk as fuel	Machine ≤ 50 horsepower and workers ≤ 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory which use wood, sawdust or husk as fuel
		(8) Producing ground chili, ground pepper, or curry paste	Machine ≤ 20 horsepower and workers ≤ 20 persons, which do not use wood, sawdust or husk as fuel	Machine ≤ 50 horsepower and workers ≤ 50 persons, which do not use wood, sawdust or husk as fuel, and is not categorized in Group 1	Machine > 50 horsepower or workers > 50 persons; or all sizes of factory which use wood, sawdust or husk as fuel
13	15	Factory engages in business related to animal feeds as follows			
		(1) Producing mixtures or instant animal feeds	-	Machine ≤ 50 horsepower	Machine > 50 horsepower
		(2) Grinding or crushing plants, seeds, plant residue, meat, bone, hair, or shell to produce or mix animal feeds	-	-	All sizes of factory
14	16	Factory engages in business related to spirit distillery, refinery, or mixing	-	-	All sizes of factory
15	17	Manufacturing of ethyl alcohol, which is not produced from sulfide residue obtained from pulp industry.	-	-	All sizes of factory
16	18	Factory engages in business related to production or mixture of spirits obtained from fruits, or other fermented beverages	-	-	All sizes of factory

17	19	Factory engages in business related to malt or beer as follows			
		(1) Malt crushing or grinding	-	-	All sizes of factory
		(2) Producing beer	-	-	All sizes of factory
18	20	Factory engages in business related to drinking water, non-alcoholic beverages, aerated beverages, or mineral waters as follows			
		(1) Producing drinking water	Machine \leq 20 horsepower	Machine \leq 50 horsepower and is not categorized in Group 1	Machine >50 horsepower
		(2) Producing non-alcoholic beverages	-	Machine \leq 50 horsepower	Machine >50 horsepower
		(3) Producing aerated beverages	-	Machine \leq 50 horsepower	Machine >50 horsepower
		(4) Producing mineral waters	Machine \leq 20 horsepower	Machine \leq 50 horsepower and is not categorized in Group 1	Machine >50 horsepower
19	21	Factory engages in business related to tobacco, pressed tobacco, smoking tobacco, chewing tobacco or snuff as follows			
		(1) Curing or stripping tobacco leaf	-	Machine \leq 50 horsepower and workers \leq 50 persons	Machine >50 horsepower or workers >50 persons
		(2) Producing cigarette, cigar or other kinds of cigarette	-	Machine \leq 50 horsepower and workers \leq 50 persons	Machine >50 horsepower or workers >50 persons

		(3) Producing pressed tobacco, smoking tobacco, flavored smoking tobacco or chewing tobacco	-	Machine \leq 50 horsepower and workers \leq 50 persons	Machine >50 horsepower or workers >50 persons
		(4) Production snuff	-	Machine \leq 50 horsepower and workers \leq 50 persons	Machine >50 horsepower or workers >50 persons
20	29	Animal skins pickling, splitting, drying, grinding or crushing, polishing and finishing, embossing or color-coating factory	-	-	All sizes of factory
21	30	Wool carding, tanning, bleaching, dyeing, polishing or finishing factory	-	-	All sizes of factory
22	43	Factory engages in business related to fertilizer or pesticide as follows			
		(1) Producing fertilizer or pesticide	-	-	All sizes of factory
		(2) Storage or packaging fertilizer or pesticide	-	-	All sizes of factory
23	92	Cold storage plants	Machine \leq 20 horsepower and workers \leq 20 persons, which does not have shelling, cleaning or processing units	Machine \leq 50 horsepower and workers \leq 50 persons, which does not have shelling, cleaning or processing units, and is not categorized in Group 1	Machine >50 horsepower or workers >50 persons or all sizes of factory that have shelling, cleaning or processing units

