

CLAIMS

1. A method to roast coffee beans in a room (100) using a roasting system (10) said roasting system comprising :
- 5 - a roasting apparatus (2), and
 - optionally a smoke treating unit (3) configured to treat the smoke produced by the roasting apparatus and to release treated smoke in the room, and
 wherein, when at least one roasting operation is implemented, said method comprises the steps of :
- 10 - obtaining desired roasting data input of said at least one roasting operation, said desired data input determining at least :
- . the type of coffee beans to be roasted,
 . the quantity of coffee beans to be roasted per roasting operation or over a period of time,
 . the level of roasting to be applied to the beans,
- 15 . optionally the number of roasting operations over a period of time,
 and
 - getting access to :
- information relative to the room, said room information comprising at least : the local health and safety regulations, the volume of the room and the ventilation rate of said
- 20 room,
 - information relative to the coffee beans roasting apparatus, said roasting apparatus information comprising at least the quantity of each contaminant produced by the roasting apparatus during the operation of roasting a specific quantity of a specific type of coffee beans up to a specific roasting level,
- 25 - optionally information relative to the smoke treating unit, said smoke treating unit information comprising at least the performance of reduction of the level of each contaminant by said smoke treating unit,
 and
 - before initiating the at least one roasting operation :
- 30 . determining the concentration of each contaminant generated in the room during said at least one roasting operation from the obtained desired roasting data input and accessible information relative : to the coffee beans roasting apparatus, to the room and optionally to the smoke treating unit,
 . for each contaminant, comparing the determined concentration of said contaminant
- 35 generated in the room with the concentration of said contaminant authorised according to local health and safety regulations,

. if, for each contaminant, the determined concentration is inferior to the authorised concentration according to local health and safety regulations, enabling the at least one roasting operation,

5 . if, for at least one contaminant, the determined concentration is superior to the authorised concentration according to local health and safety regulations, displaying an alert.

2. Method according to Claim 1, wherein, based on the obtained desired roasting use data and on the accessible information relative to the coffee beans roasting apparatus, the
10 method comprises the step of obtaining the specific quantity of each contaminant produced along said at least one roasting operation.

3. Method according to Claim 2, wherein, if the system comprises a smoke treating unit (3), based on the accessible information relative to the smoke treating unit, for each produced
15 contaminant, the method comprises the step of applying the yield of reduction to the obtained quantity of said contaminant produced by the roasting apparatus along said at least one roasting operation and to obtain the quantity of said contaminant dispensed by the smoke treating unit.

20 4. Method according to Claim 2 or 3, wherein based on the accessible information relative to the ventilation rate and the room volume, for each contaminant, the method comprises the step of determining from the ventilation rate and from the obtained quantity of each contaminant dispensed by the system, the concentration of each contaminant present in the room during said at least one roasting operation.

25 5. Method according to any one of the precedent claims, wherein the method comprises the step of preventing the at least one roasting operation if, for at least one contaminant, the determined concentration is superior to the authorised concentration according to local health and safety regulations.

30 6. Method according to any one of the precedent claims, wherein the method comprises the step of suggesting a modification of the at least one roasting operation if, for at least one contaminant, the determined concentration is superior to the authorised concentration according to local health and safety regulations.

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7. Method according to the precedent claim, wherein, if for at least one contaminant the determined concentration is superior to the authorised concentration according to local health and safety regulations, the method comprises the steps of :

- calculating the quantity of beans to be roasted in order to get a quantity of specific components present in the room along the at least one roasting operation inferior to the authorised limits of said specific components according to local health and safety regulations, and
- suggesting decreasing the quantity of beans introduced in the vessel down to that calculated quantity or suggest splitting the quantity of beans in several batches of said calculated quantity and suggest roasting said batches separately at defined intervals.

8. Method according to Claim 6 or 7, wherein, if for at least one contaminant the determined concentration is superior to the authorised concentration according to local health and safety regulations, the method comprises the steps of :

- calculating the maximum level of roasting to be applied to said beans in order to get a quantity of specific components present in the room along the at least one roasting operation inferior to the authorised limits of said specific components according to local health and safety regulations, and
- suggesting decreasing the level of roasting to be applied to said beans down to that calculated maximum level.

9. Method according to any one of Claims 6 to 8, wherein, if for at least one contaminant the deduced concentration is superior to the authorised concentration according to local health and safety regulations, the method comprises the step of suggesting improving the filtering properties of the smoke treating unit, in particular by replacing the smoke treating unit by a more efficient unit and/or to increase the ventilation rate

10. Method according to any one of the precedent claims wherein the method comprises the steps of accessing to room information, said room information comprising the quantity of at least one specific component present in the room at the moment of initiating the desired roasting operation, and

wherein, if the calculated quantity of said at least one specific component present in the room along the roasting process is superior to the authorised limits of specific according to local health and safety regulations, the method comprises the step of evaluating if an interval of time before initiating roasting is necessary.

11. Method according to Claim 10 wherein the method comprises the steps of :

- storing information about the previous roasting operations implemented inside the room including information about :

. the quantity of at least some components produced during said previous roasting processes, and

5 . the time said previous operations happened,

and

- calculating the time length necessary for the ventilation of the room to reduce the quantity of the produced components present in the room to enable a further roasting.

10 12. Method according to any one of the precedent claims wherein the method comprises the steps of determining the concentration of each contaminant generated in the room during the roasting operation from at least information relative to the smoke treating unit, said information comprising at least the performance of reduction of the level of each contaminant by said smoke treating unit, and wherein said information is adjusted on account of the
15 status of dirtiness of the smoke treating unit.

13. Method according to any one of the precedent claims wherein the method comprises the steps of :

- obtaining a desired daily roasting quantity of coffee beans, and

20 - if the roasting operation is enabled, proposing a schedule of roasting operations over the day.

14. Method according to any one of the precedent claims wherein the roasting system comprises :

25 - a duct to connect the smoke outlet of the roasting apparatus or the outlet of the smoke treating unit, said duct being configured to divert contaminants away from the room, and

- a device to close or open said duct, wherein, if for at least one contaminant the determined concentration is superior to the authorised concentration according to local health and safety regulations, the method comprises the step of opening said duct during the at least one

30 roasting operation.

15. Method according to any one of the precedent claims wherein the method comprises the steps of :

- storing the determined concentration of each contaminant generated in the room during
35 said at least one roasting operation with the obtained desired roasting data input, and

- getting access to said stored determined concentration of each contaminant when identical roasting data input are obtained for at least one roasting operation.

16. Method according to any one of the precedent claims wherein the method comprises the steps of actuating a safe mode operation of the roasting apparatus, wherein, when said mode is actuated, the method comprises the steps of :

- 5 - getting access to pre-determined unsafe roasting data, and
 - preventing the input of said pre-determined unsafe roasting data.

17. A system (10) for roasting coffee beans in a room (100), said system comprising :

- a roasting apparatus (2), and
10 - optionally a smoke treating unit (3) configured to treat the smoke produced by the roasting apparatus and to release treated smoke in the room, and
 - a control system (80) operable to implement the method to roast coffee beans of any one of Claims 1 to 16.

- 15 18. A computer program comprising instructions which, when executed by a computer, processor or control unit, cause the computer, processor or control unit to perform the method to roast coffee beans of any one of Claims 1 to 16.

19. A computer readable storage medium comprising instructions which, when executed by
20 a computer, processor or control unit cause the computer, processor or control unit to carry out the method to roast coffee beans of any one of Claims 1 to 16.