CLAIMS

1. Computer-implemented method (100) for training an autoencoder neural network or generative adversarial network device to generate indeterministic and realistic digital representations of new fragrance or flavor ingredient compositions to be compounded, characterized in that it comprises the steps of:

- providing (105) an original set of exemplar fragrance or flavor composition digital identifiers, said exemplar fragrance or flavor composition digital identifiers being representative of materialized fragrance or flavor compositions comprising at least two distinct fragrance or flavor compound ingredients, the original set of exemplar fragrance or flavor composition digital identifier further comprising, associated to at least one exemplar fragrance or flavor composition digital identifier, a value representative of at least one hedonic, sensorial and/or physicochemical parameter, and
- training (110) an autoencoder device or generative adversarial network device using the original set of exemplar fragrance or flavor composition digital identifiers to generate a fragrance or flavor composition generative model trained to generate new fragrance or flavor ingredient compositions, comprising at least two distinct fragrance or flavor compound ingredients, to be compounded, as a function of at least one value representative of at least one constraint for generated compositions representative of at least one hedonic, sensorial and/or physicochemical parameter, for the new generated fragrance or flavor composition.

2. Computer-implemented method (100) according to claim 1, in which the value representative of at least one hedonic, sensorial and/or physicochemical parameter, said value being representative of at least one captured hedonic, sensorial and/or physicochemical parameter for the materialized fragrance or flavor composition, is selected from among:

- an olfactive or taste direction associated to the identified fragrance or flavor composition,
- a conditioning medium associated to the identified fragrance or flavor composition,

- a visual and/or olfactive stability or degradation value associated to the identified fragrance or flavor composition,
- a percentage of biodegradability associated to the identified fragrance or flavor composition,
- a percentage of renewable carbon associated to the identified fragrance or flavor composition,
- a perceived psychophysical intensity associated to the identified fragrance or flavor composition,
- a flash point value associated to the identified fragrance or flavor composition,
- a toxicity value associated to the identified fragrance or flavor composition,
- a skin sensitization value associated to the identified fragrance or flavor composition,
- an enhancer compatibility value associated to the identified fragrance or flavor composition,
- a number of ingredients in the composition,
- an environmental accumulation value associated to the identified fragrance or flavor composition and/or
- retention indices for the composition.

3. Method (100) according to claim 2, which comprises a step (104) of capturing a value representative of at least one hedonic, sensorial and/or physicochemical parameter for a least one materialized fragrance or flavor composition, said value being associated to a digital identifier of a fragrance or flavor composition in the exemplar set.

4. Computer-implemented method (100) according to any one of claims 1 to 3, in which the step (110) of training is configured to train a variational autoencoder device.

5. Computer-implemented method (100) according to any one of claims 1 to 4, in which:

- the step (105) of providing is configured to provide an original set of exemplar fragrance or flavor composition digital identifiers associated to a primary conditioning medium identifier and at least an additional original set of exemplar

fragrance or flavor composition digital identifiers associated to at least one secondary conditioning medium identifier and

- the step (110) of training is configured to train a generative model in which the input is a fragrance or flavor composition digital identifier associated to a primary conditioning medium and the output is a fragrance or flavor composition digital identifier associated to at least one secondary conditioning medium identifier.

6. Computer-implemented method (200) for generating a fragrance or flavor composition represented by a digital identifier, characterized in that it comprises a step of generating (115) a fragrance or flavor composition using the trained autoencoder or generative adversarial network device trained according to any one of claims 1 to 5.

7. Computer-implemented method (200) according to claim 6, in which the step of generating (115) is configured to generate a fragrance or flavor composition digital identifier as a function of at least one value representative of at least one input constraint for generated compositions representative of at least one hedonic, sensorial and/or physicochemical parameter, for the generated fragrance or flavor composition digital identifier, among:

- an olfactive or taste direction associated to the identified fragrance or flavor composition,
- a conditioning medium associated to the identified fragrance or flavor composition,
- a visual and/or olfactive stability or degradation value associated to the identified fragrance or flavor composition,
- a percentage of biodegradability associated to the identified fragrance or flavor composition,
- a percentage of renewable carbon associated to the identified fragrance or flavor composition,
- a perceived psychophysical intensity associated to the identified fragrance or flavor composition,
- a flash point value associated to the identified fragrance or flavor composition,
- a toxicity value associated to the identified fragrance or flavor composition,
- a skin sensitization value associated to the identified fragrance or flavor composition,

- an enhancer compatibility value associated to the identified fragrance or flavor composition
- a number of ingredients in the composition,
- an environmental accumulation value associated to the identified fragrance or flavor composition and/or
- retention indices for the composition.

8. Computer-implemented method (200) according to claim 5 and any one of claims 6 or 7, in which the step (115) of generating is configured to generate a fragrance or flavor composition digital identifier associated to at least one secondary conditioning medium identifier as a function of an input of at least one fragrance or flavor composition digital identifier associated to a primary conditioning medium identifier.

9. Computer-implemented method (300) according to any one of claims 1 to 7, which comprises:

- a step (130) of generating a trained auxiliary machine learning device, comprising:
  - providing (131) an original set of exemplar fragrance or flavor composition digital identifiers and labels representative of a chemical feature, such as an olfaction feature value or a value representative of chemical compound quantity associated to said structure,
  - training (132) the auxiliary machine learning device using the original set of exemplar fragrance or flavor composition digital identifiers to provide a composition classifier and
- a step (135) of constraining the step of training a generative adversarial network device or an autoencoder device with the machine learning device, said step being executed during said step of training, as a reinforcement rule, or via post-processing of the fragrance or flavor composition identifier generated.

10. Method (100, 200, 300) according to any one of claims 1 to 9, which further comprises a step (136) of compounding a generated fragrance or flavor composition comprising at least two distinct ingredients.

11. Method (100, 200, 300) according to any one of claims 1 to 10, which further comprises a step (137) of selecting a generated fragrance or flavor composition, comprising at least two distinct ingredients, to be compounded.

12. Computer-implemented autoencoder device trained according to the method according to any one of claims 1 to 5.

13. Computer-implemented generative adversarial network device trained according to the method according to any one of claims 1 to 5.

14. Computer program product comprising instructions which, when the program is executed by a computer, cause the computer to carry out the method according to any one of claims 1 to 11.

15. Computer-readable storage medium storing instructions which, when the program is executed by a computer, cause the computer to carry out the steps of any one of claims 1 to 11.

16. Device (400) for training an autoencoder neural network or generative adversarial network device to generate indeterministic and realistic digital representations of new fragrance or flavor ingredient compositions to be compounded, characterized in that it comprises the steps of:

- a means (405) of providing an original set of exemplar fragrance or flavor composition digital identifiers, said exemplar fragrance or flavor composition digital identifiers being representative of materialized fragrance or flavor compositions comprising at least two distinct fragrance or flavor compound ingredients, the original set of exemplar fragrance or flavor composition digital identifier further comprising, associated to at least one exemplar fragrance or flavor composition digital identifier, a value representative of at least one hedonic, sensorial and/or physicochemical parameter, and
- a means (410) of training an autoencoder device or generative adversarial network device using the original set of exemplar fragrance or flavor composition digital identifiers to generate a fragrance or flavor composition generative model trained to generate new fragrance or flavor ingredient

compositions, comprising at least two distinct fragrance or flavor compound ingredients, to be compounded, as a function of at least one value representative of at least one constraint for generated compositions representative of at least one hedonic, sensorial and/or physicochemical parameter, for the new generated fragrance or flavor composition.

17. Device (500) for generating a fragrance or flavor composition digital identifier, characterized in that it comprises a means of generating (505) a fragrance or flavor composition, comprising at least two distinct ingredients, using the trained autoencoder or generative adversarial network device trained according to any one of claim 1 to 5.