Claims

1. Cushion for an aircraft seat, comprising

   - at least one pad having an upper side and a lower side made of at least one plastic foam;
   - at least one sensor system, the at least one sensor system being arranged in a region of the pad adjacent to the lower side of the pad, wherein the at least one sensor system is enclosed by plastic foam of the pad; and
   - at least one flame protection fabric covering at least one side, and
   - at least one at least one cover provided at least on the upper side of the flame retardant fabric,

   Wherein at least one second sensor system is provided in the pad, on the pad or on the flame protection fabric covered by the at least one cover or in the at least one cover.

2. Cushion according to claim 1, characterized in that the at least one sensor system comprises sensors for pressure measurement and/or strain measurement.

3. Cushion according to one of the preceding claims, characterized in that the sensor system integrated in the cover comprises pressure, temperature and/or humidity sensors.

4. Cushion according to one of the preceding claims, characterized in that the at least one sensor system comprises a flexible substrate having at least one sensor disposed on the flexible substrate.

5. Cushion according to one of the preceding claims, characterized in that the at least one sensor system is foamed or embedded in the plastic foam of the pad.

6. Cushion according to one of the preceding claims, characterized in that the sensors of the at least one sensor system are arranged in the pad in the buttocks area and/or along the thighs of a seated passenger.

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7. Cushion according to one of the preceding claims, characterized in that the at least one second sensor system is arranged in an area of the pad adjacent to the upper side of the pad.

8. Cushion according to one of the preceding claims, characterized in that the pad consists of several foam layers.

9. Cushion according to claim 8, characterized in that the at least one sensor system is arranged between two foam layers.

10. Cushion according to one of the preceding claims, characterized by at least one flame protection fabric comprising.

    - at least one barrier layer comprising at least one nonwoven fabric of at least one type of flame-resistant fiber, and

    - at least one abrasion-resistant layer provided on the barrier layer comprising at least one textile material with high abrasion resistance made of at least one type of fiber.

11. Cushion according to one of the preceding claims, characterized in that the at least one flame protection fabric comprises at least one intumescent layer.

12. Cushion according to one of the preceding claims, characterized in that the at least one cushion pad is made of a plastic foam.

13. An aircraft seat comprising at least one cushion according to any one of the preceding claims.

14. Use of a cushion with according to any one of claims 1 to 12 in combination with a management system for monitoring the degree of wear and predictive maintenance as well as the passenger's seating behavior wherein the management system comprises:

    - at least one processing unit (PU) for processing the data measured by the sensor unit;

    - at least one storage unit (SU) for storing the measured and processed data, and

    - at least one display unit for displaying the processed data.

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15. Use of a cushion according to one of the claims 1 to 12 in a computer-implemented method for determining seat occupancy, monitoring the degree of wear and predictive maintenance, and passenger seating behavior, comprising the steps:
    - Measuring the change in at least one parameter selected from temperature, pressure and/or strain by the sensor unit disposed in the cushion according to any one of claims 1-12, wherein the parameter change is exerted / caused by a passenger sitting on the seat cushion;
    - processing the measured data in the at least one processing unit and storing the data in the at least one storage unit of the management system, and
    - Displaying the processed data on the at least one display unit.

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