## Claims

1. System (10) for evaluating the insulation properties of a thermally insulated transport unit (20) comprising:

at least one thermally insulated transport unit (20) for transporting and/or storing goods, wherein the thermally insulated transport unit (20) comprises at least one temperature sensor means (30) configured to provide actual temperature data of the temperature within the thermally insulated transport unit (20); **characterized in that**

at least one evaluation means for evaluating the insulation properties at least based on a comparison of actual temperature data and calculated temperature data based on a thermal model of the thermally insulated transport unit (20).

2. System (10) according to claim 1, wherein the thermally insulated transport unit (20) further comprises memory means for storing the actual temperature data.

3. System (10) according to claim 1 or claim 2, wherein the thermally insulated transport unit (20) further comprises at least one communication means (50) configured to establish a communication with a separate computer unit and wherein the evaluation means are located in the separate computer unit.

4. System (10) according to any one of the preceding claims, wherein the thermally insulated transport unit (20) further comprises a computer unit (40) and wherein the evaluation means are located in the computer unit (40) of the thermally insulated transport unit (20).

5. System (10) according to any one of the preceding claims, wherein the insulation of the thermally insulated transport unit (20) comprises at least one vacuum insulation panel (VIP), wherein the thermally insulated transport unit (20) preferably further comprises cooling elements and wherein the thermally insulated transport unit (20) preferably further comprises phase change materials (PCM) as further cooling capacity.

6. System (10) according to any one of the preceding claims, wherein the thermally insulated transport unit (20) does not comprise any active cooling elements.

7. System (10) according to any one of the preceding claims, wherein the thermally insulated transport unit (20) further comprises a position determining unit, preferably a Global Positioning System (GPS) or by using a positioning determination algorithm based on signals in a Low-Power Wide-Area Network (LPWAN), wherein the position determining unit is preferably configured to allocate to the temperature data positioning information data.

8. System (10) according to any one of the preceding claims, wherein the thermally insulated transport unit (20) comprises further sensor means configured to provide actual temperature data of the temperature outside of the thermally insulated transport unit (20), humidity data of the air humidity the thermally insulated transport unit (20) is exposed to, acceleration data of the acceleration to which the insulated transport unit (20) is exposed to and/or solar data of the duration and intensity of solar radiation the thermally insulated transport unit (20) is exposed to.

9. System (10) according to any one of the preceding claims, wherein the evaluation means are configured to execute an evaluation algorithm, which is preferably based on the results of a machine-learning algorithm and / or an online simulation via Computational Fluid Dynamics (CFD) methods and / or a semi-empirically correlation and/or a calculation of the heat transfer considering phase change materials, engineer rules (e.g. VDI Wärmeatlas) and material properties like thermal conduction for determining the insulation properties of the thermally insulated transport unit (20).

10. System (10) according to any one of the preceding claims, wherein the evaluation means are configured to issue an evaluation message indicating the insulation properties of the thermally insulated transport unit (20), wherein the message is at least one of the following messages: a recommendation message providing a recommendation about a further use of the thermally insulated transport unit (20), an alarm message indicating a critical loss of insulation capacity of the thermally insulated transport unit (20), an inspection message indicating that the thermally insulated transport unit (20) has to be inspected by a service technician and/or a suspension message indicating the time, preferably in minutes, for how long the insulated transport unit (20) might still be used until failure occurs.

11. System (10) according to claim 10, wherein the system (10) further comprises display and/or audio output means outputting the messages of the evaluation means.

12. Use of evaluation means in a system (10) according to any one of claims 1 to 11, wherein the evaluation system (10) is configured evaluate the insulation properties of the thermally insulated transport unit (20) and preferably to issue an evaluation message indicating the insulation properties of the thermally insulated transport unit (20), a recommendation message providing a recommendation about a further use of the thermally insulated transport unit (20), an alarm message indicating a critical loss of insulation capacity of the thermally insulated transport unit (20), an inspection message indicating that the thermally insulated transport unit (20) has to be inspected by a service technician and/or a suspension message indicating the time, preferably in minutes, for how long the insulated transport unit (20) might still be used until failure occurs.

13. Use of a thermally insulated transport unit (20) for transporting and storing goods comprising at least one temperature sensor means configured to provide actual temperature data of the temperature within the thermally insulated transport unit (20) in a system (10) according to any one of the claims 1 to 11.

14. Use according to claim 13, wherein the thermally insulated transport unit (20) is configured to transport medical and pharma products.

15. Use of calculated temperature data based on a thermal model of a thermally insulated transport unit (20) for evaluating the insulation properties of a thermally insulated transport unit (20) in a system (10) according to any one of the claims 1 to 11.