Ontology-based Expert System for a Generic Drug Production of Pharmaceutical Dosage Forms

Test Record

By

**Mr. Narongrit Saisuwan 542115017**

**Mr. Panupak Wichaidit 542115047**

Department of Software Engineering

College of Arts, Media and Technology

Chiang Mai University

Project Advisor

………………………………………..

**Dr. Chartchai Doungsa-ard**

# Document History

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Document Name** | **Version** | **Status** | **Date** | **Viewable** | **Reviewer** | **Responsible** |
| **Documents** | | | | | | |
| **OEGP –Unit Test Record\_ v.0.1.docx** | **0.1**   * UTR 01 – UTR 60 | Draft | July 5, 2014 | NS, PW, CD | NS, PW | NS, PW |
| **OEGP –Test Record \_v.0.2.docx** | **0.2**   * UTR 60 – UTR 83 | Draft | July 7, 2014 | NS, PW, CD | NS, PW | NS, PW |
| **OEGP –Test Record \_v.1.0.docx** | **1.0**   * Update Test Record number | Release | July 7, 2014 | NS, PW, CD | NS, PW | NS, PW |

[[1]](#footnote-1)

Table of Contents

[Document History 2](#_Toc394519179)

[Chapter | 1 Unit Test Record 1](#_Toc394519180)

[1.1 SolubilityServiceImpl Class 1](#_Toc394519181)

[1.1.1 Unit Test Record -1(UTR-01) 1](#_Toc394519182)

[1.1.2 Unit Test Record -2(UTR-02) 2](#_Toc394519183)

[1.1.3 Unit Test Record -3(UTR-03) 3](#_Toc394519184)

[1.1.4 Unit Test Record -4(UTR-04) 4](#_Toc394519185)

[1.1.5 Unit Test Record -5(UTR-05) 5](#_Toc394519186)

[1.1.6 Unit Test Record -6(UTR-06) 6](#_Toc394519187)

[1.2 DegradationMechinismServiceimpl Class 7](#_Toc394519188)

[1.2.1 Unit Test Record -7(UTR-07) 7](#_Toc394519189)

[1.2.2 Unit Test Record -8(UTR-08) 8](#_Toc394519190)

[1.2.3 Unit Test Record -9(UTR-09) 9](#_Toc394519191)

[1.2.4 Unit Test Record -10(UTR-10) 10](#_Toc394519192)

[1.2.5 Unit Test Record -11(UTR-11) 11](#_Toc394519193)

[1.2.6 Unit Test Record -12(UTR-12) 12](#_Toc394519194)

[1.3 KineticReactionServiceImpl Class 13](#_Toc394519195)

[1.3.1 Unit Test Record -13(UTR-13) 13](#_Toc394519196)

[1.3.2 Unit Test Record -14(UTR-14) 14](#_Toc394519197)

[1.3.3 Unit Test Record -15(UTR-15) 15](#_Toc394519198)

[1.3.4 Unit Test Record -16(UTR-16) 16](#_Toc394519199)

[1.3.5 Unit Test Record -17(UTR-17) 17](#_Toc394519200)

[1.3.6 Unit Test Record -18(UTR-18) 18](#_Toc394519201)

[1.4 PkaServiceImpl Class 19](#_Toc394519202)

[1.4.1 Unit Test Record -19(UTR-19) 19](#_Toc394519203)

[1.4.2 Unit Test Record -18(UTR-18) 20](#_Toc394519204)

[1.4.3 Unit Test Record -19(UTR-19) 21](#_Toc394519205)

[1.4.4 Unit Test Record -20(UTR-20) 22](#_Toc394519206)

[1.4.5 Unit Test Record -21(UTR-21) 22](#_Toc394519207)

[1.4.6 Unit Test Record -22(UTR-22) 23](#_Toc394519208)

[1.5 PartitionCoefficientServiceImpl Class 24](#_Toc394519209)

[1.5.1 Unit Test Record -23(UTR-23) 24](#_Toc394519210)

[1.5.2 Unit Test Record -24(UTR-24) 25](#_Toc394519211)

[1.5.3 Unit Test Record -25(UTR-25) 26](#_Toc394519212)

[1.5.4 Unit Test Record -26(UTR-26) 27](#_Toc394519213)

[1.5.5 Unit Test Record -27(UTR-27) 28](#_Toc394519214)

[1.5.6 Unit Test Record -28(UTR-28) 29](#_Toc394519215)

[1.6 SolidServiceImpl Class 30](#_Toc394519216)

[1.6.1 Unit Test Record -29(UTR-29) 30](#_Toc394519217)

[1.6.2 Unit Test Record -30(UTR-30) 31](#_Toc394519218)

[1.6.3 Unit Test Record -31(UTR-31) 32](#_Toc394519219)

[1.6.4 Unit Test Record -32(UTR-32) 33](#_Toc394519220)

[1.6.5 Unit Test Record -33(UTR-33) 34](#_Toc394519221)

[1.6.6 Unit Test Record -34(UTR-34) 35](#_Toc394519222)

[1.7 Hygroscopicity ServiceImpl Class 36](#_Toc394519223)

[1.7.1 Unit Test Record -35(UTR-35) 36](#_Toc394519224)

[1.7.2 Unit Test Record -36(UTR-36) 37](#_Toc394519225)

[1.7.3 Unit Test Record -37(UTR-37) 38](#_Toc394519226)

[1.7.4 Unit Test Record -38(UTR-38) 39](#_Toc394519227)

[1.7.5 Unit Test Record -39(UTR-39) 40](#_Toc394519228)

[1.7.1 Unit Test Record- 40 (UTR -40) 41](#_Toc394519229)

[1.8 ParticleSizeServiceImpl Class 42](#_Toc394519230)

[1.8.1 Unit Test Record -41(UTR-41) 42](#_Toc394519231)

[1.8.2 Unit Test Record -42(UTR-42) 43](#_Toc394519232)

[1.8.3 Unit Test Record -43(UTR-43) 44](#_Toc394519233)

[1.8.4 Unit Test Record -44(UTR-44) 45](#_Toc394519234)

[1.8.5 Unit Test Record -45(UTR-45) 46](#_Toc394519235)

[1.8.6 Unit Test Record -46(UTR-46) 47](#_Toc394519236)

[1.9 FlowabilityServiceImpl Class 48](#_Toc394519237)

[1.9.1 Unit Test Record -47(UTR-47) 48](#_Toc394519238)

[1.9.2 Unit Test Record -48(UTR-48) 49](#_Toc394519239)

[1.9.3 Unit Test Record -49(UTR-49) 50](#_Toc394519240)

[1.9.4 Unit Test Record -50(UTR-50) 51](#_Toc394519241)

[1.9.5 Unit Test Record -51(UTR-51) 51](#_Toc394519242)

[1.9.6 Unit Test Record -52(UTR-52) 52](#_Toc394519243)

[1.10 DensityServiceImpl Class 53](#_Toc394519244)

[1.10.1 Unit Test Record -53(UTR-53) 53](#_Toc394519245)

[1.10.2 Unit Test Record -54(UTR-54) 54](#_Toc394519246)

[1.10.3 Unit Test Record -55(UTR-55) 55](#_Toc394519247)

[1.10.4 Unit Test Record -56(UTR-56) 56](#_Toc394519248)

[1.10.5 Unit Test Record -57(UTR-57) 57](#_Toc394519249)

[1.10.6 Unit Test Record -58(UTR-58) 58](#_Toc394519250)

[1.11 CompoundFunctionServiceImpl Class 59](#_Toc394519251)

[1.11.1 Unit Test Record -59(UTR-59) 59](#_Toc394519252)

[1.11.2 Unit Test Record -60(UTR-60) 60](#_Toc394519253)

[1.11.3 Unit Test Record -61(UTR-61) 61](#_Toc394519254)

[1.11.4 Unit Test Record -62(UTR-62) 62](#_Toc394519255)

[1.11.5 Unit Test Record -63(UTR-63) 63](#_Toc394519256)

[1.11.6 Unit Test Record -64(UTR-64) 64](#_Toc394519257)

# Unit Test Record

## SolubilityServiceImpl Class

### Unit Test Record -1(UTR-01)

**add(Solubility solubility): Solubility**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | | Expect Result | | | | | status |
| Id | Type | MaxValue | MinValue | SolubilityValue | Id | Type | MaxValue | MinValue | SolubilityValue |
| 1 | Test add solubility object which is correct the formal of solubility object. | Null | “solubility1” | 4 | 2 | 5 | Null | “solubility1” | 4 | 2 | 5 | p |
| 2 | Test add solubility object which is correct the formal of solubility object. | null | “solubility2” | 7 | 1 | 3 | null | “solubility2” | 7 | 1 | 3 | p |
| 3 | Test add solubility object which is contained in the database already. | null | null | null | null | Null | null | null | null | null | null | p |
| 4 | Test add solubility object which is contained in the database already. | null | null | null | null | null | null | null | null | null | null | p |

### Unit Test Record -2(UTR-02)

**update(Solubility solubility): Solubility**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | | Expect Result | | | | | status |
| Id | Type | MaxValue | MinValue | SolubilityValue | Id | Type | MaxValue | MinValue | SolubilityValue |
| 1 | Test update solubility object which is correct the formal of solubility object and and contained in the database. | 1 | “solubility1” | 6 | 4 | 3 | 1 | “solubility1” | 6 | 4 | 3 | p |
| 2 | Test update solubility object which is correct the formal of solubility object and and contained in the database. | 2 | “solubility2” | 7 | 3 | 10 | 2 | “solubility2” | 7 | 3 | 10 | p |
| 3 | Test update solubility object which is not contained in the database. | 3 | “solubility3” | 2 | 1 | 3 | null | null | null | null | Null | p |
| 4 | Test update solubility object which is not contained in the database. | 4 | “solubility4” | 3 | 2 | 5 | null | null | null | null | Null | p |

### Unit Test Record -3(UTR-03)

**delete(Solubility solubility): Solubility**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | | Expect Result | | | | | status |
| Id | Type | MaxValue | MinValue | SolubilityValue | Id | Type | MaxValue | MinValue | SolubilityValue |
| 1 | Test delete solubility object which is contained in database and correct format solubility object. | 1 | “solubility1” | 4 | 2 | 5 | Null | “solubility1” | 4 | 2 | 5 | p |
| 2 | Test delete solubility object which is contained in database and correct format solubility object. | 2 | “solubility2” | 7 | 3 | 10 | null | “solubility2” | 7 | 1 | 3 | p |
| 3 | Test delete solubility object which is not contained in database or incorrect format solubility object. | 3 | “solubility3” | 4 | 1 | 3 | null | null | null | null | Null | p |
| 4 | Test delete solubility object which is not contained in database or incorrect format solubility object. | 4 | “solubility4” | 3 | 2 | 6 | null | null | null | null | Null | p |

### Unit Test Record -4(UTR-04)

**findAll():Solubility []**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| case | Description | Actual Result | Expect Result | status |
| List of solubility object | List of solubility object |
| 1 | Test get all solubility list | { Solubility1, Solubility2} | { Solubility1, Solubility2} | p |

### Unit Test Record -5(UTR-05)

**findById(long id):Solubility**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | | Expect Result | | | | | status |
| Id | Type | MaxValue | MinValue | SolubilityValue | Id | Type | MaxValue | MinValue | SolubilityValue |
| 1 | Test get solubility object which is contained in database by solubility id. | 1 | “solubility1” | 4 | 2 | 5 | 1 | “solubility1” | 4 | 2 | 5 | p |
| 2 | . Test get solubility object which is contained in database by solubility id. | 2 | “solubility2” | 7 | 1 | 3 | 2 | “solubility2” | 7 | 1 | 3 | p |
| 3 | Test get solubility object which is not contain in database by solubility id. | null | Null | Null | Null | Null | null | Null | Null | Null | Null | p |
| 4 | Test get solubility object which is not contain in database by solubility id. | null | Null | Null | Null | Null | null | Null | Null | Null | Null | p |

### Unit Test Record -6(UTR-06)

**findByType(String type):Solubility**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | | Expect Result | | | | | status |
| Id | Type | MaxValue | MinValue | SolubilityValue | Id | Type | MaxValue | MinValue | SolubilityValue |
| 1 | Test get solubility object which is contained in the database by solubility type. | 1 | “solubility1” | 4 | 2 | 5 | 1 | “solubility1” | 4 | 2 | 5 | p |
| 2 | Test get solubility object which is contained in the database by solubility type. | 2 | “solubility2” | 7 | 1 | 3 | 2 | “solubility2” | 7 | 1 | 3 | p |
| 3 | Test get solubility object which is not contain in database by solubility type | Null | Null | Null | Null | Null | Null | Null | Null | Null | Null | p |
| 4 | Test get solubility object which is not contain in database by solubility type | Null | Null | Null | Null | Null | Null | Null | Null | Null | Null | p |

## DegradationMechinismServiceimpl Class

### Unit Test Record -7(UTR-07)

**add(DegradationMechinism degradationMechinism): DegradationMechinism**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | Expect Result | | status |
| Id | Type | Id | Type |
| 1 | Test adddegradationMechinism object which is correct the formal of degradationMechinism object. | Not null | “degradationMechinism3” | Not null | “degradationMechinism3” | P |
| 2 | Test add degradationMechinismobject which is correct the formal of degradationMechinism object. | Not null | “degradationMechinism4” | Not null | “degradationMechinism4” | P |
| 3 | Test add degradationMechinism object which is contained in the database already. | null | Null | null | Null | p |
| 4 | Test add degradationMechinism object which is contained in the database already. | null | Null | null | Null | p |

### Unit Test Record -8(UTR-08)

**update(DegradationMechinism degradationMechinism ):DegradationMechinism**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | Expect Result | | Status |
| Id | Type | Id | Type |
| 1 | Test update degradationMechinism object which is correct the formal of degradationMechinism object and contained in the database. | 1 | “degradationMechanismTest1” | 1 | “degradationMechanismTest1” | p |
| 2 | Test update degradationMechinism object which is correct the formal of degradationMechinism object and contained in the database. | 2 | “degradationMechanismTest2” | 2 | “degradationMechanismTest2” | p |
| 3 | Test update degradationMechinism object which is not contained in the database. | null | Null | null | Null | p |
| 4 | Test update degradationMechinism object which is not contained in the database. | null | Null | null | Null | p |

### Unit Test Record -9(UTR-09)

**Delete(DegradationMechinism degradationMechinism): DegradationMechinism**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | Expect Result | | status |
| Id | Type | Id | Type |
| 1 | Test delete degradationMechinism object which is contained in database and correct format degradationMechinism object. | Null | “degradationMechinism1” | Null | “degradationMechinism1” | p |
| 2 | Test delete degradationMechinism object which is contained in database and correct format degradationMechinism object. | null | “degradationMechinism2” | null | “degradationMechinism2” | p |
| 3 | Test delete degradationMechinism object which is not contained in database or incorrect format degradationMechinism object. | null | Null | null | Null | p |
| 4 | Test delete degradationMechinism object which is not contained in database or incorrect format degradationMechinism object. | null | Null | null | Null | p |

### Unit Test Record -10(UTR-10)

**findAll():degradationMechinism []**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| case | Description | Actual Result | Expect result | status |
| List of degradationMechinism object | List of degradationMechinism object |
| 1 | Test get all degradationMechinism list. | {DegradationMechinism1,DegradationMechinism2} | {DegradationMechinism1,DegradationMechinism2} | p |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| case | Description | Actual Result | | Expect result | | status |
| Id | Type | Id | Type |
| 1 | Test get degradationMechinism object by degradationMechinism id . | 1 | “degradationMechanism1” | 1 | “degradationMechanism1” | p |
| 2 | Test get degradationMechinism object by degradationMechinism id. | 2 | “degradationMechanism2” | 2 | “degradationMechanism2” | p |
| 3 | Test get degradationMechinism object which is not contain in database. | null | Null | null | Null | p |
| 4 | Test get degradationMechinism object which is not contain in database. | null | null | null | Null | p |

### Unit Test Record -11(UTR-11)

**findById(long id):degradationMechinism**

### Unit Test Record -12(UTR-12)

**findByType(String type):degradationMechinism**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| case | Description | Actual Result | | Expect result | |
| Id | Type | Id | Type |
| 1 | Test get degradationMechinism object by degradationMechinism type. | 1 | “degradationMechanism1” | 1 | “degradationMechanism1” |
| 2 | Test get degradationMechinism object by degradationMechinism type. | 2 | “degradationMechanism2” | 2 | “degradationMechanism2” |
| 3 | Test get degradationMechinism object which is not contain in database. | null | null | null | null |
| 4 | Test get degradationMechinism object which is not contain in database. | null | null | null | null |

## KineticReactionServiceImpl Class

### Unit Test Record -13(UTR-13)

**add(KineticReaction kineticReaction): KineticReaction**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | Expect Result | | status |
| Id | Type | Id | Type |
| 1 | Test add kineticReaction object which is correct the formal of kineticReaction object. | Not null | “kineticReaction3” | Not null | “kineticReaction3” | p |
| 2 | Test add kineticReaction object which is correct the formal of kineticReaction object. | Not null | “kineticReaction4” | Not null | “kineticReaction4” | p |
| 3 | Test add kineticReaction object which is contained in the database already. | null |  | null |  | p |
| 4 | Test add kineticReaction object which is contained in the database already. | null |  | null |  | p |

### Unit Test Record -14(UTR-14)

**update(KineticReaction kineticReaction): KineticReaction**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | Expect Result | | status |
| Id | Type | Id | Type |
| 1 | Test update kineticReaction object which is correct the formal of kineticReaction object. | 1 | “kineticReactionTest1” | 1 | “kineticReactionTest1” | p |
| 2 | Test update kineticReaction object which is correct the formal of kineticReaction object. | 2 | “kinecticReactionTest2” | 2 | “kinecticReactionTest2” | p |
| 3 | Test update kineticReaction object which is not contained in the database. | null |  | null |  | p |
| 4 | Test update kineticReaction object which is not contained in the database. | null |  | null |  | p |

### Unit Test Record -15(UTR-15)

**Delete(KineticReaction kineticReaction): KineticReaction**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | Expect Result | | status |
| Id | Type | Id | Type |  |
| 1 | Test delete kineticReaction object which is contained in database and correct format kineticReaction object. | Null | “kineticReaction1” | Null | “kineticReaction1” | p |
| 2 | Test delete kineticReaction object which is contained in database and correct format kineticReaction object. | Null | “kineticReaction2” | Null | “kineticReaction2” | p |
| 3 | Test delete kineticReaction object which is not contained in database or incorrect format kineticReaction object. | null | Null | null | Null | p |
| 4 | Test delete kineticReaction  object which is not contained in database or incorrect format kineticReaction object. | null | Null | null | Null | p |

### Unit Test Record -16(UTR-16)

**findAll():KineticReaction []**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| case | Description | Actual Result | Expect result | status |
| List of kineticReaction object | List of kineticReaction object |
| 1 | Test get all kineticReaction object list. | {KineticReaction1,KineticReaction2} | {KineticReaction1,KineticReaction2} | p |

### Unit Test Record -17(UTR-17)

**findById(long id):** **KineticReaction**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| case | Description | Actual Result | | Expect result | | status |
| Id | Type | Id | Type |
| 1 | Test get kineticReaction object by kineticReaction id . | 1 | “kineticReaction1” | 1 | “kineticReaction1” | p |
| 2 | Test get kineticReaction object by kineticReaction id. | 2 | “kineticReaction2” | 2 | “kineticReaction2” | p |
| 3 | Test get kineticReaction object which is not contain in database. | null | Null | null | Null | p |
| 4 | Test get object kineticReaction which is not contain in database. | null | Null | null | Null | p |

### Unit Test Record -18(UTR-18)

**findByType(String type):** **KineticReaction**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| case | Description | Actual Result | | Expect result | | status |
| Id | Type | Id | Type |
| 1 | Test get kineticReaction object by kineticReaction type. | 1 | “kineticReaction1” | 1 | “kineticReaction1” | p |
| 2 | Test get kineticReaction object by kineticReaction type. | 2 | “kineticReaction2” | 2 | “kineticReaction2” | p |
| 3 | Test get kineticReaction object which is not contain in database. | Null | Null | Null | Null | p |
| 4 | Test get kineticReaction object which is not contain in database. | Null | Null | Null | Null | p |

## PkaServiceImpl Class

### Unit Test Record -19(UTR-19)

**add(Pka pka):Pka**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | | Expect Result | | | | | status |
| Id | Type | MaxValue | MinValue | PkaValue | Id | Type | MaxValue | MinValue | PkaValue |
| 1 | Test add pka object which is correct the formal of pka object. | null | “pka3” | 4 | 4 | 2 | Not null | “pka3” | 4 | 4 | 2 | p |
| 2 | Test add pka object which is correct the formal of pka object. | null | “pka4” | 6 | 3 | 6 | Not null | “pka4” | 6 | 3 | 6 | p |
| 3 | Test add pka object which is contained in the database already . | 1 | “pka1” | 4 | 2 | 5 | null | null | null | null | Null | p |
| 4 | Test add pka object which is contained in the database already. | 2 | “pka2” | 7 | 1 | 3 | null | null | null | null | Null | p |

### Unit Test Record -18(UTR-18)

**update(Pka pka):Pka**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | | Expect Result | | | | | status |
| Id | Type | MaxValue | MinValue | PkaValue | Id | Type | MaxValue | MinValue | PkaValue |
| 1 | Test update pka object which is correct the formal of pka object and contained in the database. | 1 | “pka1” | 4 | 1 | 5 | 1 | “pka1” | 4 | 1 | 5 | p |
| 2 | Test update pka object which is correct the formal of pka object and contained in the database. | 2 | “pka2” | 7 | 3 | 10 | 2 | “pka2” | 7 | 3 | 10 | p |
| 3 | Test update pka object which is not contained in the database. | null |  |  |  |  | null |  |  |  |  | p |
| 4 | Test update pka object which is not contained in the database. | null |  |  |  |  | null |  |  |  |  | p |

### Unit Test Record -19(UTR-19)

**delete(Pka pka):Pka**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | | Expect Result | | | | | status |
| Id | Type | MaxValue | MinValue | PkaValue | Id | Type | MaxValue | MinValue | PkaValue |
| 1 | Test delete pka object which is contained in database and correct format Pka object. | 1 | “pka1” | 4 | 2 | 5 | Null | “pka1” | 4 | 2 | 5 | p |
| 2 | Test delete pka object which is contained in database and correct format pka object. | 2 | “pka2” | 7 | 1 | 3 | Null | “pka2” | 7 | 1 | 3 | p |
| 3 | Test delete pka object which is not contained in database or incorrect format pka object. | 3 | “pka3” | 4 | 1 | 3 | null | Null | Null | Null | Null | p |
| 4 | Test delete pka object which is not contained in database or incorrect format pka object. | 4 | “pka4” | 3 | 2 | 6 | null | Null | Null | Null | Null | p |

### Unit Test Record -20(UTR-20)

**findAll():Pka []**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| case | Description | Actual Result | Expect result | status |
| List of pka object | List of pka object |
| 1 | Test get all pka list. | {Pka1,Pka2} | {Pka1,Pka2} | p |

### Unit Test Record -21(UTR-21)

**findById(long id):Pka**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | | Expect Result | | | | | status |
| Id | Type | MaxValue | MinValue | PkaValue | Id | Type | MaxValue | MinValue | PkaValue |
| 1 | Test get pka object by pka id . | 1 | “pka1” | 4 | 2 | 5 | 1 | “pka1” | 4 | 2 | 5 | p |
| 2 | Test get pka object by pka id. | 2 | “pka2” | 7 | 1 | 3 | 2 | “pka2” | 7 | 1 | 3 | p |
| 3 | Test get pka object which is not contain in database. | Null | Null | Null | Null | Null | Null | Null | Null | Null | Null | p |
| 4 | Test get pka object which is not contain in database. | Null | Null | Null | Null | Null | Null | Null | Null | Null | Null | p |

### Unit Test Record -22(UTR-22)

**findByType(String type):Pka**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | | Actual Result | | | | | | Expect Result | | | | | | status |
|  | Id | | Type | MaxValue | MinValue | PkaValue | Id | | Type | MaxValue | MinValue | PkaValue | |
| 1 | Test get pka object by pka type. | 1 | | “pka1” | 4 | 2 | 5 | 1 | | “pka1” | 4 | 2 | 5 | | p |
| 2 | Test get pka object by pka type. | 2 | | “pka2” | 7 | 1 | 3 | 2 | | “pka2” | 7 | 1 | 3 | | p |
| 3 | Test get pka object which is not contain in database. | null | |  |  |  |  | null | |  |  |  |  | | p |
| 4 | Test get pka object which is not contain in database. | null | |  |  |  |  | null | |  |  |  |  | p | |

## PartitionCoefficientServiceImpl Class

### Unit Test Record -23(UTR-23)

**add(PartitionCoefficient partitionCoefficient): PartitionCoefficient**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | Expect Result | |  | status |
| Id | Type | Value | Id | Type | Value |
| 1 | Test add partitionCoefficient object which is correct the formal of partitionCoefficient object. | Not null | “partitionCoefficient3 ” | 2 | Not null | “partitionCoefficient3 ” | 2 | p |
| 2 | Test add partitionCoefficient object which is correct the formal of partitionCoefficient object. | Not null | “partitionCoefficient4” | 6 | Not null | “partitionCoefficient4” | 6 | p |
| 3 | Test add partitionCoefficient object which is contained in the database already. | Null |  |  | Null |  |  | p |
| 4 | Test add partitionCoefficient object which is contained in the database already. | Null |  |  | Null |  |  | p |

### Unit Test Record -24(UTR-24)

**update(PartitionCoefficient partitionCoefficient): PartitionCoefficient**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | Expect Result | | | status |
| Id | Type | Value | Id | Type | Value |
| 1 | Test update partitionCoefficient object which is correct the formal of partitionCoefficient object and contained in the database. | 1 | “partitionCoefficient” | 2 | 1 | “partitionCoefficient” | 2 | p |
| 2 | Test update partitionCoefficient object which is correct the formal of partitionCoefficient object and contained in the database. | 2 | “partitionCoefficient” | 6 | 2 | “partitionCoefficient” | 6 | p |
| 3 | Test update partitionCoefficient object which is not contained in the database. | null | Null | Null | null | Null | Null | p |
| 4 | Test update partitionCoefficient object which is not contained in the database. | null | Null | Null | null | Null | Null | p |

### Unit Test Record -25(UTR-25)

**Delete(PartitionCoefficient partitionCoefficient): PartitionCoefficient**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | Expect Result | | | status |
| Id | Type | Value | Id | Type | Value |
| 1 | Test delete partitionCoefficient object which is contained in database and correct format partitionCoefficient object. | 1 | “partitionCoefficient1” | 5 | Null | “partitionCoefficient1” | 5 | p |
| 2 | Test delete partitionCoefficient object which is contained in database and correct format partitionCoefficient object. | 2 | “partitionCoefficient2” | 3 | Null | “partitionCoefficient2” | 3 | p |
| 3 | Test delete partitionCoefficient object which is not contained in database or incorrect format partitionCoefficient object. | 3 | “partitionCoefficient 3” | 3 | null | Null | Null | p |
| 4 | Test delete partitionCoefficient object which is not contained in database or incorrect format partitionCoefficient object. | 4 | “partitionCoefficient 4” | 6 | null | Null | Null | p |

### Unit Test Record -26(UTR-26)

**findAll():partitionCoefficient []**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| case | Description | Actual Result | Expect result | status |
| List of pka object | List of pka object | p |
| 1 | Test get all PartitionCoefficient list | {PartitionCoefficient1, PartitionCoefficient2} | {PartitionCoefficient1, PartitionCoefficient2} |

### Unit Test Record -27(UTR-27)

**findById(long id):** **PartitionCoefficient**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| case | Description | Actual Result | | | Expect result | | | status |
| Id | Type | Value | Id | Type | Value |
| 1 | Test get partitionCoefficient object by partitionCoefficient id. | 1 | “partitionCoefficient1” | 5 | 1 | “partitionCoefficient1” | 5 | p |
| 2 | Test get partitionCoefficient object by partitionCoefficient id. | 2 | “partitionCoefficient2” | 3 | 2 | “partitionCoefficient2” | 3 | p |
| 3 | Test get partitionCoefficient object which is not contain in database. | null | Null | Null | null | Null | Null | p |
| 4 | Test get partitionCoefficient object which is not contain in database. | null | Null | Null | null | Null | Null | p |

### Unit Test Record -28(UTR-28)

**findByType(String type):** **PartitionCoefficient**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| case | Description | Actual Result | | | Expect result | status |
| Id | Type | Id | Type |
| 1 | Test get partitionCoefficient object by PartitionCoefficient type. | 1 | “partitionCoefficient1” | 1 | “partitionCoefficient1” | p |
| 2 | Test get partitionCoefficient object by partitionCoefficient type. | 2 | “partitionCoefficient2” | 2 | “partitionCoefficient2” | p |
| 3 | Test get partitionCoefficient object which is not contain in database. | null |  | null |  | p |
| 4 | Test get partitionCoefficient object which is not contain in database. | null |  | null |  | p |

## SolidServiceImpl Class

### Unit Test Record -29(UTR-29)

**add(Solidstate solidstate): Solidstate**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | Expect Result | | status |
| Id | Type | Id | Type |
| 1 | Test add solidstate  object which is correct the formal of solidsatate object . | Not null | “solidstate3” | Not null | “solidstate3” | p |
| 2 | Test add solidstate  object which is correct the formal of Solidsatate object. | Not Null | “solidstate4” | Not Null | “solidstate4” | p |
| 3 | Test add solidstate object which is contained in the database already. | null |  | null |  | p |
| 4 | Test add solidstate object which is contained in the database already. | null |  | null |  | p |

### Unit Test Record -30(UTR-30)

**update(Solidstate solidstate): Solidstate**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | Expect Result | | status |
| Id | Type | Id | Type |
| 1 | Test update solidstate object which is correct the formal of solidstate object and and contained in the database. | 1 | “solidstateTest1” | 1 | “solidstateTest1” | p |
| 2 | Test update solidastate object which is correct the formal of solidstate object and and contained in the database. | 2 | “solidstateTest2” | 2 | “solidstateTest2” | p |
| 3 | Test update solidstate object which is not contained in the database. | null |  | null |  | p |
| 4 | Test update solidstate object which is not contained in the database. | null |  | null |  | p |

### Unit Test Record -31(UTR-31)

**Delete(Solidstate solidstate): Solidstate**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | Expect Result | | status |
| Id | Type | Id | Type |
| 1 | Test delete solidstate object which is contained in database and correct format solidstate object. | Null | “solidsatate1” | Null | “solidsatate1” | p |
| 2 | Test delete solidstate object which is contained in database and correct format solidstate object. | Null | “solidsatate2” | Null | “solidsatate2” | p |
| 3 | Test delete solidstate object which is not contained in database or incorrect format solidstate object. | null | Null | null | Null | p |
| 4 | Test delete solidstate  object which is not contained in database or incorrect format solidstate object. | null | Null | null | Null | p |

### Unit Test Record -32(UTR-32)

**findAll():Solidstate []**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| case | Description | Actual Result | Expect result | status |
| List of solidstate object | List of solidstate object |
| 1 | Test get all solidstate list | {Solidsatate1,Solidstate2} | {Solidsatate1,Solidstate2} | p |

### Unit Test Record -33(UTR-33)

f**indById(long id):** **Solidstate**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| case | Description | Actual Result | | Expect result | | status |
| Id | Type | Id | Type |
| 1 | Test get solidstate object by solidstate id. | 1 | “solidstate1” | 1 | “solidstate1” | P |
| 2 | Test get solistate object by solidstate id. | 2 | “solidstate2” | 2 | “solidstate2” | P |
| 3 | Test get solidstate object which is not contain in database. | null | Null | null | Null | P |
| 4 | Test get object solidstate which is not contain in database. | null | Null | null | Null | p |

### Unit Test Record -34(UTR-34)

**findByType(String type):** **Solidstate**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| case | Description | Actual Result | | Expect result | | status |
| Type |  | Id | Type |
| 1 | Test get solidstate object by solidstate type. | “solidstate1” |  | 1 | “solidstate1” | p |
| 2 | Test get solidstate object by solidstate type. | “solidstate2” |  | 2 | “solidstate2” | p |
| 3 | Test get solidstate object which is not contain in database. | “solidstate3” |  | null |  | p |
| 4 | Test get object solidstate which is not contain in database. | “solidstate4” |  | null |  | p |

## Hygroscopicity ServiceImpl Class

### Unit Test Record -35(UTR-35)

**add(Hygroscopicity hygroscopicity): Hygroscopicity**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | Expect Result | | Status |
| Id | Type | Id | Type |
| 1 | Test add hygroscopicity object which is correct the formal of hygroscopicity object. | Not Null | “hygroscopicity3” | Not Null | “hygroscopicity3” | p |
| 2 | Test add hygroscopicity object which is correct the formal of hygroscopicity object. | Not Null | “hygroscopicity4” | Not Null | “hygroscopicity4” | p |
| 3 | Test add hygroscopicity object which is contained in the database already. | Null | Null | Null | Null | p |
| 4 | Test add hygroscopicity object which is contained in the database already. | Null | Null | Null | Null | p |

### Unit Test Record -36(UTR-36)

**update (Hygroscopicity hygroscopicity): Hygroscopicity**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | Expect Result | | status |
| Id | Type | Id | Type |
| 1 | Test update hygroscopicity object which is correct the formal of hygroscopicity  object and contained in the database. | 1 | “hygroscopicity1” | 1 | “hygroscopicity1” | p |
| 2 | Test update hygroscopicity object which is contained in database and correct format hygroscopicity object. | 2 | “hygroscopicity2” | 2 | “hygroscopicity2” | p |
| 3 | Test update hygroscopicity object which is not contained in database or incorrect format hygroscopicity object. | 3 | “hygroscopicity3” | Null | Null | p |
| 4 | Test update hygroscopicity object which is not contained in database or incorrect format. | 4 | “hygroscopicity4” | Null | Null | p |

### Unit Test Record -37(UTR-37)

**Delete(Hygroscopicity hygroscopicity): Hygroscopicity**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | Expect Result | | status |
| Id | Type | Id | Type |
| 1 | Test delete hygroscopicity object which is contained in database and correct format hygroscopicity object. | 1 | “hygroscopicity1” | Null | “hygroscopicity1” | p |
| 2 | Test delete hygroscopicity object which is contained in database and correct format hygroscopicity object. | 2 | “hygroscopicity2” | Null | “hygroscopicity2” | p |
| 3 | Test delete hygroscopicity object which is not contained in database or incorrect format hygroscopicity object. | 3 | “hygroscopicity3” | Null | Null | p |
| 4 | Test delete hygroscopicity object which is not contained in database or incorrect format. | 4 | “hygroscopicity4” | Null | Null | p |

### Unit Test Record -38(UTR-38)

**findAll():Hygroscopicity []**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| case | Description | Actual Result | Expect result | status |
| List of hygroscopicity object | List of hygroscopicity object | p |
| 1 | Test get all hygroscopicity list | { Hygroscopicity1, Hygroscopicity2} | { Hygroscopicity1, Hygroscopicity2} | p |

### Unit Test Record -39(UTR-39)

**findById(long id):** **Hygroscopicity**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| case | Description | Input | | Expect result | | status |
| Id | Type | Id | Type |
| 1 | Test get hygroscopicity object by hygroscopicity id. | 1 | “hygroscopicity1” | 1 | “hygroscopicity1” | p |
| 2 | Test get hygroscopicity object by hygroscopicity id. | 2 | “hygroscopicity2” | 2 | “hygroscopicity2” | p |
| 3 | Test get hygroscopicity object which is not contain in database. | null | Null | null | Null | p |
| 4 | Test get object hygroscopicity which is not contain in database. | null | Null | null | Null | p |

### Unit Test Record- 40 (UTR -40)

**findByType(String type):** **Hygroscopicity**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| case | Description | Actual Result | | Expect result | | status |
| Id | Type | Id | Type |
| 1 | Test get hygroscopicity object by hygroscopicity type. | 1 | “hygroscopicity1” | 1 | “hygroscopicity1” | p |
| 2 | Test get hygroscopicity object by hygroscopicity type. | 2 | “hygroscopicity2” | 2 | “hygroscopicity2” | p |
| 3 | Test get hygroscopicity object which is not contain in database. | null |  | null |  | p |
| 4 | Test get hygroscopicity object which is not contain in database. | null |  | null |  | p |

## ParticleSizeServiceImpl Class

### Unit Test Record -41(UTR-41)

**add(ParticleSize particle Size): Particle Size**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | | Expect Result | | | | | | status |
| Id | Type | MaxValue | MinValue | particleSize Value | Id | Type | MaxValue | MinValue | particleSize Value | |
| 1 | Test add particleSize object which is correct the formal of particleSize object. | Not null | “particleSize 3” | 4 | 4 | 2 | Not null | “particleSize 3” | 4 | 4 | 2 | p | |
| 2 | Test add particleSize object which is correct the formal of particleSize object. | Not null | “particleSize 4” | 6 | 3 | 6 | Not null | “particleSize 4” | 6 | 3 | 6 | p | |
| 3 | Test add particleSize object which is contained in the database already. | null | null | null | null | Null | null | null | null | null | Null | p | |
| 4 | Test add particleSize object which is contained in the database already. | null | null | null | null | Null | null | null | null | null | Null | p | |

### Unit Test Record -42(UTR-42)

**update(ParticleSize particle Size): Particle Size**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | | Expect Result | | | | | status |
| Id | Type | MaxValue | MinValue | particleSize Value | Id | Type | MaxValue | MinValue | particleSize Value |
| 1 | Test update particleSize object which is correct the formal of particleSize object and and contained in the database. | 1 | “particleSize 1” | 6 | 4 | 3 | 1 | “particleSize 1” | 6 | 4 | 3 | p |
| 2 | Test update particleSize object which is correct the formal of particleSize object and and contained in the database. | 2 | “particleSize 2” | 7 | 3 | 10 | 2 | “particleSize 2” | 7 | 3 | 10 | p |
| 3 | Test update particleSize object which is not contained in the database. | null | null | null | null | Null | null | null | null | null | Null | p |
| 4 | Test update particleSize object which is not contained in the database. | null | null | null | null | Null | null | null | null | null | Null | p |

### Unit Test Record -43(UTR-43)

**delete(ParticleSize particle Size): Particle Size**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | | Expect Result | | | |  | status |
| Id | Type | MaxValue | MinValue | particleSize Value | Id | Type | MaxValue | MinValue | particleSize Value |
| 1 | Test delete particleSize object which is contained in database and correct format particleSize object. | Null | “particleSize” | 4 | 2 | 5 | Null | “particleSize” | 4 | 2 | 5 | p |
| 2 | Test delete particleSize object which is contained in database and correct format particleSize object. | null | “particleSize” | 7 | 1 | 3 | null | “particleSize” | 7 | 1 | 3 | p |
| 3 | Test delete particleSize object which is not contained in database or incorrect format particleSize object. | null | null | null | null | Null | null | null | null | null | Null | p |
| 4 | Test delete particleSize object which is not contained in database or incorrect format solubility object. | null | null | null | null | Null | null | null | null | null | Null | p |

### Unit Test Record -44(UTR-44)

**findAll():ParticleSize []**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| case | Description | Actual Result | Expect result | status |
| List of particleSize | List of particleSize | p |
| 1 | Test get all particleSize list | {ParticleSize1,ParticleSize2} | {ParticleSize1,ParticleSize2} | p |

### Unit Test Record -45(UTR-45)

**findById(long id):ParticleSize**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | | Expect Result | | | | | status |
| Id | Type | MaxValue | MinValue | particleSize Value | Id | Type | MaxValue | MinValue | particleSize Value |
| 1 | Test get particleSize object which is contained in database by particleSize id. | 1 | “particleSize 1” | 4 | 2 | 5 | 1 | “particleSize 1” | 4 | 2 | 5 | p |
| 2 | Test get particleSize object which is contained in database by solubility id. | 2 | “particleSize 2” | 7 | 1 | 3 | 2 | “particleSize 2” | 7 | 1 | 3 | p |
| 3 | Test get particleSize object which is not contain in database by solubility id. | null | Null | Null | Null | Null | null | Null | Null | Null | Null | p |
| 4 | Test get particleSize object which is not contain by particleSize id in database. | null | Null | Null | Null | Null | null | Null | Null | Null | Null | p |

### Unit Test Record -46(UTR-46)

**findByType(String type):ParticleSize**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | | Expect Result | | | | | status |
| Id | Type | MaxValue | MinValue | particleSize Value | Id | Type | MaxValue | MinValue | particleSize Value |
| 1 | Test get particleSize object which is contained in the database by particleSize type. | 1 | “particleSize1” | 4 | 2 | 5 | 1 | “particleSize1” | 4 | 2 | 5 | p |
| 2 | Test get particleSize object which is contained in the database by solubility type. | 2 | “particleSize2” | 7 | 1 | 3 | 2 | “particleSize2” | 7 | 1 | 3 | p |
| 3 | Test get particleSize object which is not contain in database by particleSize type. | Null | Null | Null | Null | Null | Null | Null | Null | Null | Null | p |
| 4 | Test get particleSize object which is not contain in database by particleSize type. | Null | Null | Null | Null | Null | Null | Null | Null | Null | Null | p |

## FlowabilityServiceImpl Class

### Unit Test Record -47(UTR-47)

**add(Flowability flowability): Flowability**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | Expect Result | | status |
| Id | Type | Id | Type |
| 1 | Test add Flowability object which is correct the formal of Flowability object. | Not Null | “Flowability3” | Not Null | “Flowability3” | p |
| 2 | Test add Flowability object which is correct the formal of Flowability object. | Not Null | “Flowability4” | Not Null | “Flowability4” | p |
| 3 | Test add Flowability object which is contained in the database already. | Null | Null | Null | Null | p |
| 4 | Test add Flowability object which is contained in the database already. | Null | Null | Null | Null | p |

### Unit Test Record -48(UTR-48)

**update (Flowability flowability): Flowability**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | Expect Result | | status |
| Id | Type | Id | Type |
| 1 | Test update flowability object which is correct the formal of flowability  object and contained in the database. | 1 | “flowability1” | 1 | “flowability1” | p |
| 2 | Test update flowability object which is contained in database and correct format flowability object. | 2 | “flowability2” | 2 | “flowability2” | p |
| 3 | Test update flowability object which is not contained in database or incorrect format flowability object. | Null | Null | Null | Null | p |
| 4 | Test update flowability object which is not contained in database or incorrect format. | Null | Null | Null | Null | p |

### Unit Test Record -49(UTR-49)

**Delete(Flowability flowability): Flowability**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | Expect Result | | status |
| Id | Type | Id | Type |
| 1 | Test delete flowability object which is contained in database and correct format flowability object. | Null | “flowability1” | Null | “flowability1” | p |
| 2 | Test delete flowability object which is contained in database and correct format flowability object. | Null | “flowability2” | Null | “flowability2” | p |
| 3 | Test delete flowability object which is not contained in database or incorrect format flowability object. | Null | Null | Null | Null | p |
| 4 | Test delete flowability object which is not contained in database or incorrect format. | Null | Null | Null | Null | p |

### Unit Test Record -50(UTR-50)

**findAll():Flowability[]**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| case | Description | Actual Result | Expect result | status |
| List of flowability object | List of flowability object | p |
| 1 | Test get all flowability list | { Flowability 1, Flowability 2} | { Flowability 1, Flowability 2} | p |

### Unit Test Record -51(UTR-51)

f**indById(long id): Flowability**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| case | Description | Actual Result | | Expect result | | Status |
| Id | Type | Id | Type |  |
| 1 | Test get flowability object by flowability id. | 1 | “flowability1” | 1 | “flowability1” | P |
| 2 | Test get flowability object by flowability id. | 2 | “flowability2” | 2 | “flowability2” | P |
| 3 | Test get flowability object which is not contain in database. | null | Null | null | Null | P |
| 4 | Test get object flowability which is not contain in database. | null | Null | null | Null | P |

### Unit Test Record -52(UTR-52)

**findByType(String type): Flowability**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| case | Description | Actual Result | | Expect result | | status |
| Id | Type | Id | Type |
| 1 | Test get flowability object by flowability type. | 1 | “flowability1” | 1 | “flowability1” | p |
| 2 | Test get flowability object by flowability type. | 2 | “flowability2” | 2 | “flowability2” | p |
| 3 | Test get flowability object which is not contain in database. | null | Null | null | Null | p |
| 4 | Test get flowability object which is not contain in database. | null | Null | null | Null | p |

## DensityServiceImpl Class

### Unit Test Record -53(UTR-53)

**add(Density density): Density**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | Expect Result | | | status |
| Id | Type | Value | Id | Type | Value |
| 1 | Test add density object which is correct the formal of density object. | Not null | “density3 ” | 2 | Not null | “density3 ” | 2 | p |
| 2 | Test add density object which is correct the formal of density object. | Not null | “density4” | 6 | Not null | “density4” | 6 | p |
| 3 | Test add density object which is contained in the database already. | Null | null | null | Null | null | null | p |
| 4 | Test add density object which is contained in the database already. | Null | null |  | Null | null | null | p |

### Unit Test Record -54(UTR-54)

**update(Density density): Density**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | Expect Result | | | status |
| Id | Type | Value | Id | Type | Value |
| 1 | Test update density object which is correct the formal of density object and contained in the database. | 1 | “density” | 2 | 1 | “density” | 2 | p |
| 2 | Test update density object which is correct the formal of density object and contained in the database. | 2 | “density” | 6 | 2 | “density” | 6 | p |
| 3 | Test update density object which is not contained in the database. | null | Null | Null | null | Null | Null | p |
| 4 | Test update density object which is not contained in the database. | null | Null | Null | null | Null | Null | p |

### Unit Test Record -55(UTR-55)

**Delete(Density density): Density Test data**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | Expect Result | | status |
| Id | Type | Id | Type |
| 1 | Test delete density object which is contained in database and correct format density object. | Null | “ density 1” | Null | “ density1” | p |
| 2 | Test delete density object which is contained in database and correct format density object. | Null | “ density2” | Null | “ density2” | p |
| 3 | Test delete density object which is not contained in database or incorrect format density object. | Null | Null | Null | Null | p |
| 4 | Test delete density object which is not contained in database or incorrect format. | Null | Null | Null | Null | p |

### Unit Test Record -56(UTR-56)

**findAll(): Density[]**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| case | Description | Actual Result | Expect result | status |
| List of Density object | List of Density object |
| 1 | Test get all Density list | {Density1, Density2} | {Density1, Density2} | p |

### Unit Test Record -57(UTR-57)

**findById(long id): Density**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| case | Description | Actual Result | | | Expect result | | | status |
| Id | Type | Value | Id | Type | Value |
| 1 | Test get density object by density id. | 1 | “density1” | 5 | 1 | “density1” | 5 | p |
| 2 | Test get density object by density id. | 2 | “density2” | 3 | 2 | “density2” | 3 | p |
| 3 | Test get density object which is not contain in database. | null | Null | Null | null | Null | Null | p |
| 4 | Test get density object which is not contain in database. | null | Null | Null | null | Null | Null | p |

### Unit Test Record -58(UTR-58)

**findByType(String type):** **Density**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| case | Description | Actual Result | | Expect result | |
| Id | Type | Id | Type |
| 1 | Test get density object by density type. | 1 | “density1” | 1 | “density1” |
| 2 | Test get density object by density type. | 2 | “density2” | 2 | “density2” |
| 3 | Test get density object which is not contain in database. | null |  | null |  |
| 4 | Test get density object which is not contain in database. | null |  | null |  |

## CompoundFunctionServiceImpl Class

### Unit Test Record -59(UTR-59)

**add(CompoundFunction compoundFunction): CompoundFunction**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | Expect Result | | | | status |
| Id | Type | MaxValue | MinValue | Id | Type | MaxValue | MinValue |
| 1 | Test add compoundFunctionobject which is correct the formal of compoundFunction object. | Not null | “compoundFunction3” | 4 | 4 | Not null | “compoundFunction3” | 4 | 4 | p |
| 2 | Test add compoundFunction object which is correct the formal of compoundFunction object. | Not null | “compoundFunction4” | 6 | 3 | Not null | “compoundFunction4” | 6 | 3 | p |
| 3 | Test add compoundFunction object which is contained in the database already. | null | null | null | Null | null | null | null | Null | p |
| 4 | Test add compoundFunction object which is contained in the database already. | null | null | null | Null | null | null | null | Null | p |

### Unit Test Record -60(UTR-60)

**Update (CompoundFunction compoundFunction): CompoundFunction**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | Expect Result | | | | status |
| Id | Type | MaxValue | MinValue | Id | Type | MaxValue | MinValue |
| 1 | Test update compoundFunction object which is correct the formal of compoundFunction object and exit in database. | 1 | “compoundFunction1” | 6 | 4 | 1 | “compoundFunction1” | 6 | 4 | p |
| 2 | Test update compoundFunction object which is correct the formal of compoundFunction object and exit in database. | 2 | “compoundFunction2” | 7 | 3 | 2 | “compoundFunction2” | 7 | 3 | p |
| 3 | Test update compoundFunction object which is not contained in the database. | null | null | null | Null | null | null | null | Null | p |
| 4 | Test update solubility object which is not contained in the database. | null | null | null | Null | null | null | null | Null | p |

### Unit Test Record -61(UTR-61)

**delete(CompoundFunction compoundFunction): CompoundFunction**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | Expect Result | | | | status |
| Id | Type | MaxValue | MinValue | Id | Type | MaxValue | MinValue |
| 1 | Test delete compoundFunction object which is contained in database and correct format compoundFunction object. | 1 | “compoundFunction1” | 4 | 2 | Null | “compoundFunction1” | 4 | 2 | p |
| 2 | Test delete compoundFunction object which is contained in database and correct format compoundFunction object. | 2 | “compoundFunction2” | 7 | 1 | Null | “compoundFunction2” | 7 | 1 | p |
| 3 | Test delete compoundFunction object which is not contained in database or incorrect format compoundFunction object. | 3 | “compoundFunction3” | 4 | 1 | Null | Null | null | Null | p |
| 4 | Test delete compoundFunction object which is not contained in database or incorrect format compoundFunction object. | 4 | “compoundFunction4” | 3 | 2 | Null | Null | null | Null | p |

### Unit Test Record -62(UTR-62)

**findAll():CompoundFunction[]**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| case | Description | Actual Result | Expect result | status |
| List of compoundFunction object | List of compoundFunction object | p |
| 1 | Test get all CompoundFunction list | { CompoundFunction1, CompoundFunction1} | { CompoundFunction1, CompoundFunction1} |

### Unit Test Record -63(UTR-63)

**findById(long id):CompoundFunction**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | Expect Result | | | | status |
| Id | Type | MaxValue | MinValue | Id | Type | MaxValue | MinValue |
| 1 | Test get compoundFunction object which is contained in the database by compoundFunction id . | 1 | “compoundFunction1” | 4 | 2 | 1 | “compoundFunction1” | 4 | 2 | p |
| 2 | Test get compoundFunction object which is contained in the database by compoundFunction id. | 2 | “CompoundFunction2” | 7 | 1 | 2 | “CompoundFunction2” | 7 | 1 | p |
| 3 | Test get compoundFunction object which is not contain in database by compoundFunction id. | null | Null | Null | Null | null | Null | Null | Null | p |
| 4 | Test get compoundFunction object which is not contain in database by compoundFunction id. | null | Null | Null | Null | null | Null | Null | Null | p |

### Unit Test Record -64(UTR-64)

**findByType(String type):CompoundFunction**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Description | Actual Result | | | | Expect Result | | | | status |
| Id | Type | MaxValue | MinValue | Id | Type | MaxValue | MinValue |
| 1 | Test get compoundFunction object which is contained in the database by compoundFunction type. | 1 | “compoundFunction1” | 4 | 2 | 1 | “compoundFunction1” | 4 | 2 | p |
| 2 | Test get compoundFunction object which is contained in the database by compoundFunction type. | 2 | “CompoundFunction2” | 7 | 1 | 2 | “CompoundFunction2” | 7 | 1 | p |
| 3 | Test get compoundFunction object which is not contain in database by compoundFunction type. | null | Null | Null | Null | null | Null | Null | Null | p |
| 4 | Test get compoundFunction object which is not contain in database by compoundFunction type. | null | Null | Null | Null | null | Null | Null | Null | p |

1. NS – Narongrit Saisuwan , PW – Panupak Wichaidit , CD - Chartchai Doungsa-ard [↑](#footnote-ref-1)