| **Composite** **Lab.** | **Project Protocol** |  |
| --- | --- | --- |
| **Name**  **Title****Contact email****Tel.** |   | **Date:** |
|  **Project goal:** |  |  |
|  |
| **Project planning guidelines**  |
| **CAUTION: FOLLOW LAB SAFETY INSTRUCTIONS.****CAUTION: FOLLOW MSDS INSTRUCTION****Target product description:**  Add product parts & moulds Drawing/Picture) |
| Op.No.  | **Operation Description** | **Safety kit & Tools****(As required)** | **Notes / Remark** |
| 01 | **Consumable material preparation:***

 *Use Table 1 to track the process*

|  |  |  |
| --- | --- | --- |
| **Materials** | **\*Dimension** | **Tick when complete** |
|  | …… x …. mm |  |
|  | …… x …. mm |  |
|  | …… x …. mm |  |
|  | …… x …. mm |  |
|  |  |  |
|  |  |  |
|  |  |  |

Table 1 | * Gloves
* Scissors
* Masking Tape
 |  |
| 02 | **Mould Surface Preparation (claening)**  | * Gloves
* Safety glasses
* Paper Towel
 |  |
| 03 | **Check-out Fibre/fabric:*** *Log-out material from dry storage.*
* *Record material data in Table 2 below.*

|  |  |
| --- | --- |
| **Data** | **Description** |
| Material ID no. |  |
| Batch no. (if any) |   |

Table 2 | * Gloves
 |  |
| 04 | **Fabric/Ply Cutting*** Required fabric ply/layers calculation:
* Cut out plies to their required dimensions.

 Use Table 3 to track progress.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No. of** **Plies** | **Required Dimension** | **Thickness** | **Fibre Direction** | **Tick** |
| A1 | …….. x ……. mm | …….mm |  |  |
| A2 | …… x …. mm |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Table 3Write down the total weight of the plies:\_\_\_\_\_\_\_\_\_\_\_\_grams | * Gloves
* Tape measure
* Scissors
 |  |
| 05 | **Lay-up Fibre/Fabric and consumables***Lay-up plies according to Table.*

|  |  |  |
| --- | --- | --- |
| **Ply** | **Orientation** | **Tick when complete** |
| A1 |  |  |
| A2 |  |  |
|  |  |  |
|  |  |  |

Table 5 320 | * Gloves
* Safety Specs
* Release film
* Sealant tape
* Scissors
* breather

\_\_\_\_\_\_:\_\_\_\_\_\_am/pm |  |
| 06 | **Bag-up and vacuum*** *Proceed to vacuum bag over the entire lay-up.*
* *Vacuum ……….. mbar*
* Vacuum leak check
 | * Nylon vacuum bag material
* Sealant tape

\_\_\_\_\_:\_\_\_\_\_\_am/pm |  |
| 07 | **Matrix Preparation:***Take all necessary safety precautions as instruction and MSDS forms** *Calculate the weight of resin needed using wetting ratio of …….., fibre to resin.*

|  |  |  |
| --- | --- | --- |
|  | **Mix ratio by weight** | **Quantity Required** |
| **Resin: \*\_\_\_\_\_\_\_\_\_\_** |  |  |
| **Hardener: \*\_\_\_\_\_\_\_\_\_** |  |  |

* *Place a clean, empty container on the scale and set zero.*
* *Write down the actual weight of the resin and hardener below:*

|  |  |  |
| --- | --- | --- |
|  | **Mix ratio by weight** | **Quantity Acquired** |
| **Resin: \*\_\_\_\_\_\_\_\_\_\_** |  |  |
| **Hardener: \*\_\_\_\_\_\_\_\_\_** |  |  |

**Resin mixing procedure:*** Mixing time ………. Min
 | * containers
* Spatula
* Gloves
* Saftey Glasses
* Digital Scales

\_\_\_\_\_\_:\_\_\_\_\_\_am/pm | . |
| 08 | **Curing Process:*** *Heating resource:*

 *Oven*  *Room temperature** *Curing preparing:*

*Vacuum:……….**Heating Cycle: Temp. …………C , Period: ……………..**Cooling and demoulding …………….C* | OvenVacuum unitGlovesProtection glasses |  |
| 09 | **Part Identification***Mark on the unaffected side of the part with its part number:* *“\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_” and/or in the centre of the mould*. | * Marker pen
 |  |
| 10 | **Product Inspection**U*se a micrometre, measure the thicknesses of product**Product Weight after curing**Required mechanical test*  | MicrometreScaleMaterial test lab |  |

*You can attach any document/references related to project.*