**Appendix S1**

Appendix S1 table 1 describes the action names and the associated format. The bold words in the “*Format*” column appear in the text as they are, while the time, chemical name, or temperature replace other words. Certain parameters may not be present in the original text; therefore, such parameters are omitted from the structure format. The table below describes the full version of the action.

Table 1. Action names and the format.

|  |  |
| --- | --- |
| **Action name** | **Format** |
| InvalidAction | ***INVALIDACTION*** |
| Add | ***ADD*** *chemical name* ***(****quantity****)******at*** *temperature* ***under*** *chemical name* ***over*** *time* |
| CollectLayer | ***COLLECTLAYER*** *(aqueous/organic)* |
| Concentrate | ***CONCENTRATE*** |
| Degas | ***DEGAS******with*** *chemical name* ***for*** *time* |
| DrySolid | ***DRYSOLID******for*** *time* ***at*** *temperature* ***under*** *atmosphere* |
| DrySolution | ***DRYSOLUTION******over*** *chemical* |
| Extract | ***EXTRACT******with*** *chemical name number* ***x*** |
| Filter | ***FILTER******keep*** *phase* |
| FollowOtherProcedure | ***FOLLOWOTHERPROCEDURE*** |
| MakeSolution | ***MAKESOLUTION******with*** *chemical name* ***(****quantity****)******and*** *chemical name* ***(****quantity****)*** |
| Microwave | ***MICROWAVE******for*** *time* ***at*** *temperature* |
| OtherLanguage | ***OTHERLANGUAGE*** |
| Partition | ***PARTITION******with*** *chemical name* ***and*** *chemical name* |
| PhaseSeparation | ***PHASESEPARATION*** |
| Purify | ***PURIFY*** *gradient ratio-ratio chemical name:chemical name* |
| PH | ***PH******with*** *chemical name* ***to PH*** *number* |
| Quench | ***QUENCH******with*** *chemical name* ***at*** *temperature* |
| Recrystallize | ***RECRYSTALLIZE******from*** *chemical name* |
| Reflux | ***REFLUX for*** *time* ***at*** *temperature* ***under*** *chemical name* |
| SetTemperature | ***SETTEMPERATURE*** *temperature* |
| Sonicate | ***SONICATE******for*** *time* ***at*** *temperature* |
| Stir | ***STIR******for*** *time* ***at*** *temperature* ***under*** *chemical name* |
| Triturate | ***TRITURATE******with*** *chemical name* |
| Wait | ***WAIT******for*** *duration* ***at*** *temperature* |
| Wash | ***WASH******with*** *chemical name number* ***x*** |
| Yield | ***YIELD*** *chemical name* |
| NoAction | ***NOACTION*** |