

# Composer: Simple TEM Tutorial

## Adding a type

### 1: Select “Administration”

Materials Data Curation System

Welcome, admin. Thanks for logging in.

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Home | Data Curation | Data Exploration | Composer

## Materials Data Curator

This system allows for the curation of Material Data in a repository using predefined templates.

This is being developed at the National Institute of Standards and Technology and is made available to solicit comments from the Material Science community. Please do not enter any proprietary data into this system.

### Available Options [All Options »](#)

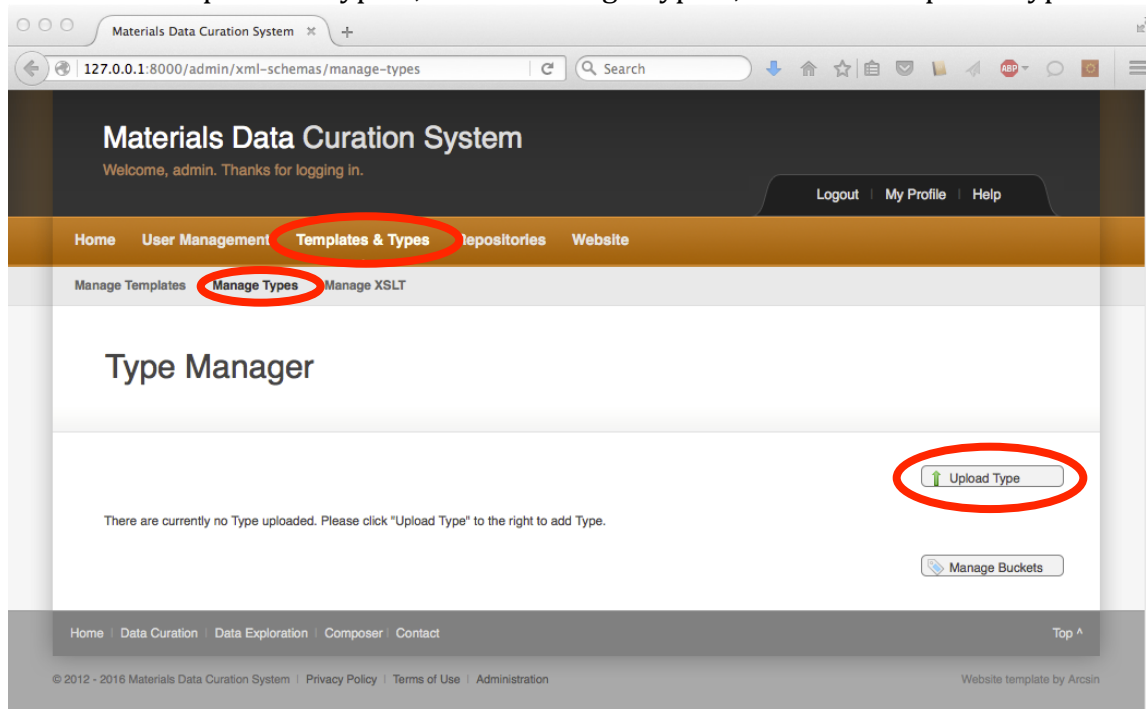
-  [Curate your Materials Data](#)  
Click here to select a form template and then fill out the corresponding form.
-  [Explore the repository](#)  
Click here to search for Materials Data in the repository using flexible queries.
-  [Compose a template](#)  
Click here to compose your own template.

### Most Recent Templates [Browse All »](#)

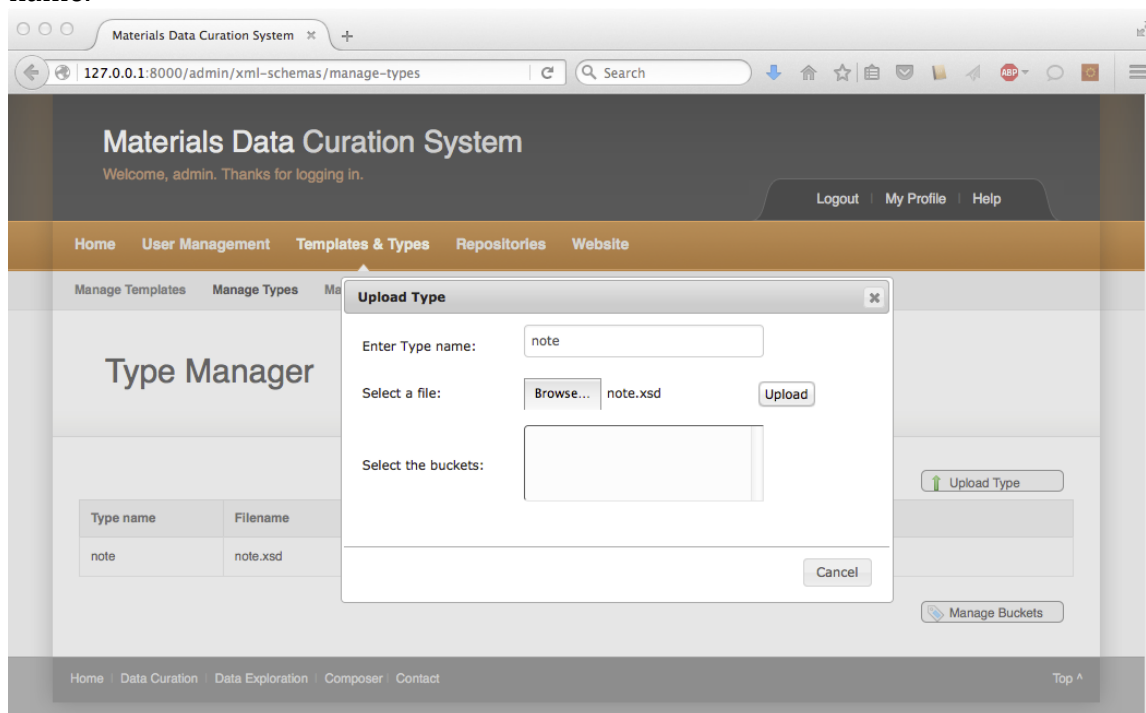
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2: Select “Templates & Types”, select “Manage Types”, and select “Upload Type”



3: Navigate to the TEM Tutorial folder and select “note.xsd”. Enter “note” as the type name.



#### 4. Click on “Home”

Materials Data Curation System

Welcome, admin. Thanks for logging in.

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Home | User Management | Templates & Types | Repositories | Website

Manage Templates | Manage Types | Manage XSLT

## Type Manager

Upload Type

Type name	Filename	Buckets	Status	Actions
note	note.xsd		Registered	Versions Edit Delete

Manage Buckets

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# Modifying an existing Template

## 1: Click on “Composer”

Materials Data Curation System

Welcome, admin. Thanks for logging in.

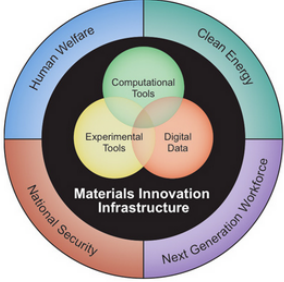
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Home | Data Curation | Data Exploration | **Composer**

### Materials Data Curator




This system allows for the curation of Material Data in a repository using predefined templates.

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The diagram illustrates the Materials Innovation Infrastructure. It features a central circle labeled "Materials Innovation Infrastructure" surrounded by four overlapping circles: "Computational Tools" (green), "Experimental Tools" (yellow), "Digital Data" (orange), and "Next Generation Workforce" (purple). These are further enclosed by a ring divided into four segments: "Human Welfare" (blue), "Clean Energy" (teal), "National Security" (red), and "Next Generation Workforce" (purple).

#### Available Options [All Options »](#)

-  **[Curate your Materials Data](#)**  
Click here to select a form template and then fill out the corresponding form.
-  **[Explore the repository](#)**  
Click here to search for Materials Data in the repository using flexible queries.
-  **[Compose a template](#)**  
Click here to compose your own template.

#### Most Recent Templates [Browse All »](#)

TEM-Tutorial | workshop-TEM.xsd

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2: Select “TEM-Tutorial” as current template. Proceed to second step: “Compose Template”

The screenshot shows the Materials Data Curation System interface. The top navigation bar includes links for Home, Data Curation, Data Exploration, and Composer. The Composer section is active, showing a sidebar with 'Start Template' and 'Compose Template' options. The main content area is titled 'Start Template' and contains a table of global templates. The 'TEM-Tutorial' row is circled in red, highlighting the 'Set as current template' button.

**Materials Data Curation System**  
Welcome, admin. Thanks for logging in.

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Home | Data Curation | Data Exploration | **Composer**

Start Template | Compose Template

**Composer**

- 1 Select Template
- 2 Compose Template

**Start Template**

Select a new or existing start template from the following table to start composing. Once you make your selection, click on "Compose Template" to proceed. It will automatically load the appropriate template and display it on the next page.

⚠ No template selected. Select one in the table below.

**Global Templates**

Template name	File name	Actions
New Base Template	new_base_template.xsd	Select as start template
TEM-Tutorial	workshop-TEM.xsd	Set as current template

**User Defined Templates**

Create your own templates using the [Composer](#) and you will be able to use them from this section.

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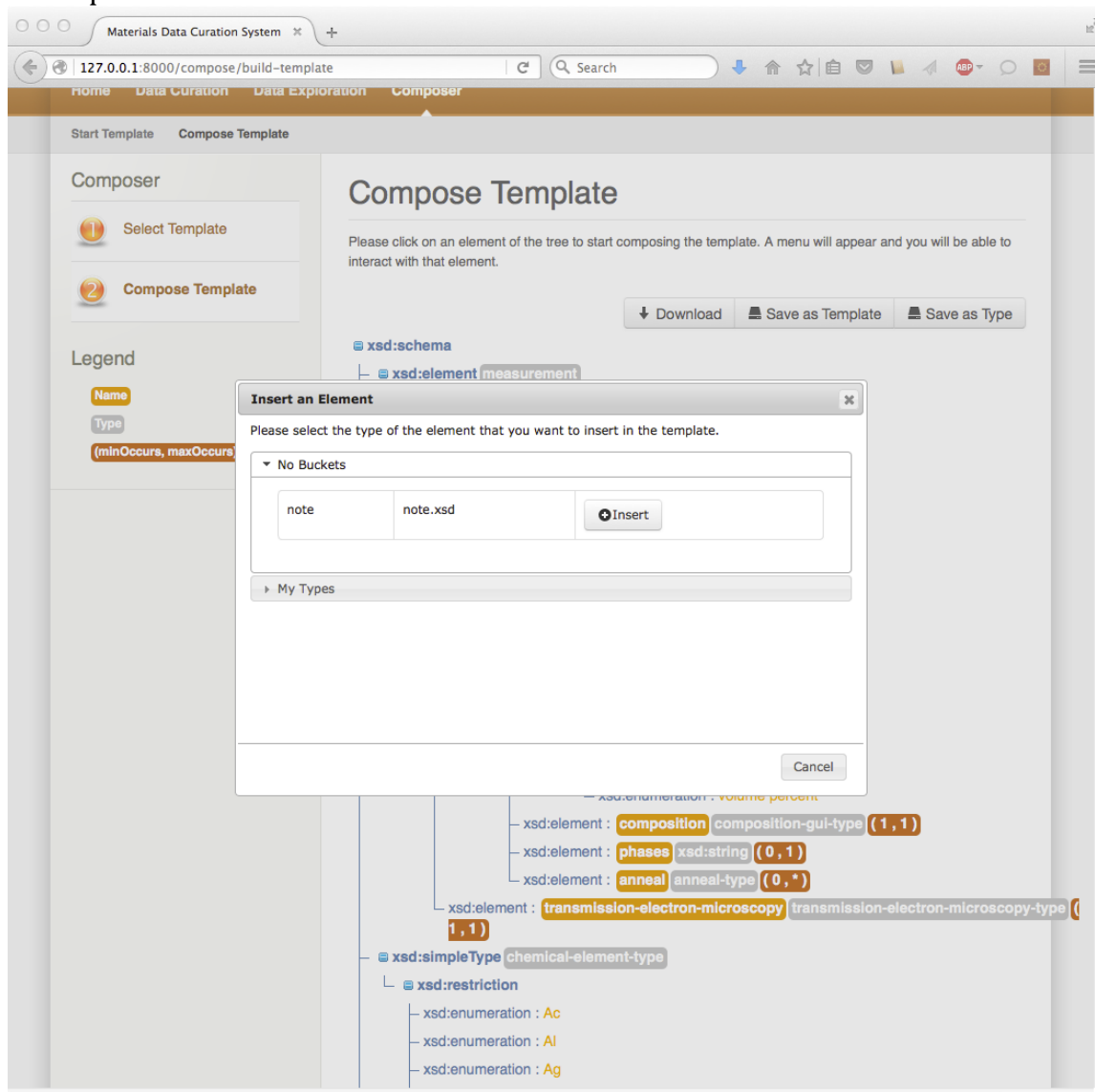
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### 3: Click on the top-level xsd:sequence and select “Add Element”

The screenshot shows the 'Materials Data Curation System' interface. The browser address bar indicates the URL '127.0.0.1:8000/compose/build-template'. The page title is 'Compose Template'. The left sidebar has a 'Composer' section with two buttons: 'Select Template' (1) and 'Compose Template' (2). Below this is a 'Legend' section with labels for 'Name', 'Type', and '(minOccurs, maxOccurs)'. The main content area displays an XSD schema tree. The top-level element is 'xsd:schema', which contains 'xsd:element measurement'. Under 'measurement' is 'xsd:complexType', which contains 'xsd:sequence'. This 'xsd:sequence' is highlighted with a red circle. Below it, the tree shows 'xsd:element core' with 'core-type (1,1)', 'xsd:element material' with 'xsd:complexType' containing 'xsd:sequence', 'xsd:element quantity-unit' with 'xsd:simpleType' containing 'xsd:restriction' (listing enumerations like 'mass fraction', 'mass percent', 'mole fraction', 'mole percent', 'volume fraction', 'volume percent'), 'xsd:element composition' with 'composition-gui-type (1,1)', 'xsd:element phases' with 'xsd:string (0,1)', 'xsd:element anneal' with 'anneal-type (0,\*)', and 'xsd:element transmission-electron-microscopy' with 'transmission-electron-microscopy-type (1,1)'. At the bottom, there is a 'xsd:simpleType chemical-element-type' with 'xsd:restriction' (listing enumerations like 'Ac', 'Al', 'Ag').

#### 4: Drop-down “No Buckets” menu and insert “note”



## 5: Notice new element

The screenshot displays the Materials Data Curation System interface. On the left, a 'Legend' panel shows the following elements:

- Name
- Type
- (minOccurs, maxOccurs)

The main area shows an XSD schema editor. The schema is structured as follows:

- xsd:schema**
  - xsd:element measurement**
    - xsd:complexType**
      - xsd:sequence**
        - xsd:element core** core-type (1,1)
        - xsd:element material**
          - xsd:complexType**
            - xsd:sequence**
              - xsd:element quantity-unit**
                - xsd:simpleType**
                  - xsd:restriction**
                    - xsd:enumeration : mass fraction
                    - xsd:enumeration : mass percent
                    - xsd:enumeration : mole fraction
                    - xsd:enumeration : mole percent
                    - xsd:enumeration : volume fraction
                    - xsd:enumeration : volume percent
              - xsd:element composition** composition-gui-type (1,1)
              - xsd:element phases** xsd:string (0,1)
              - xsd:element anneal** anneal-type (0,\*)
              - xsd:element transmission-electron-microscopy** transmission-electron-microscopy-type (1,1)
              - xsd:element note** note (1,1)
  - xsd:simpleType chemicalElement-type**
    - xsd:restriction**
      - xsd:enumeration : Ac
      - xsd:enumeration : Al
      - xsd:enumeration : Ag
      - xsd:enumeration : Am
      - xsd:enumeration : Ar
      - xsd:enumeration : As
      - xsd:enumeration : At
      - xsd:enumeration : Au
      - xsd:enumeration : B
      - xsd:enumeration : Ba



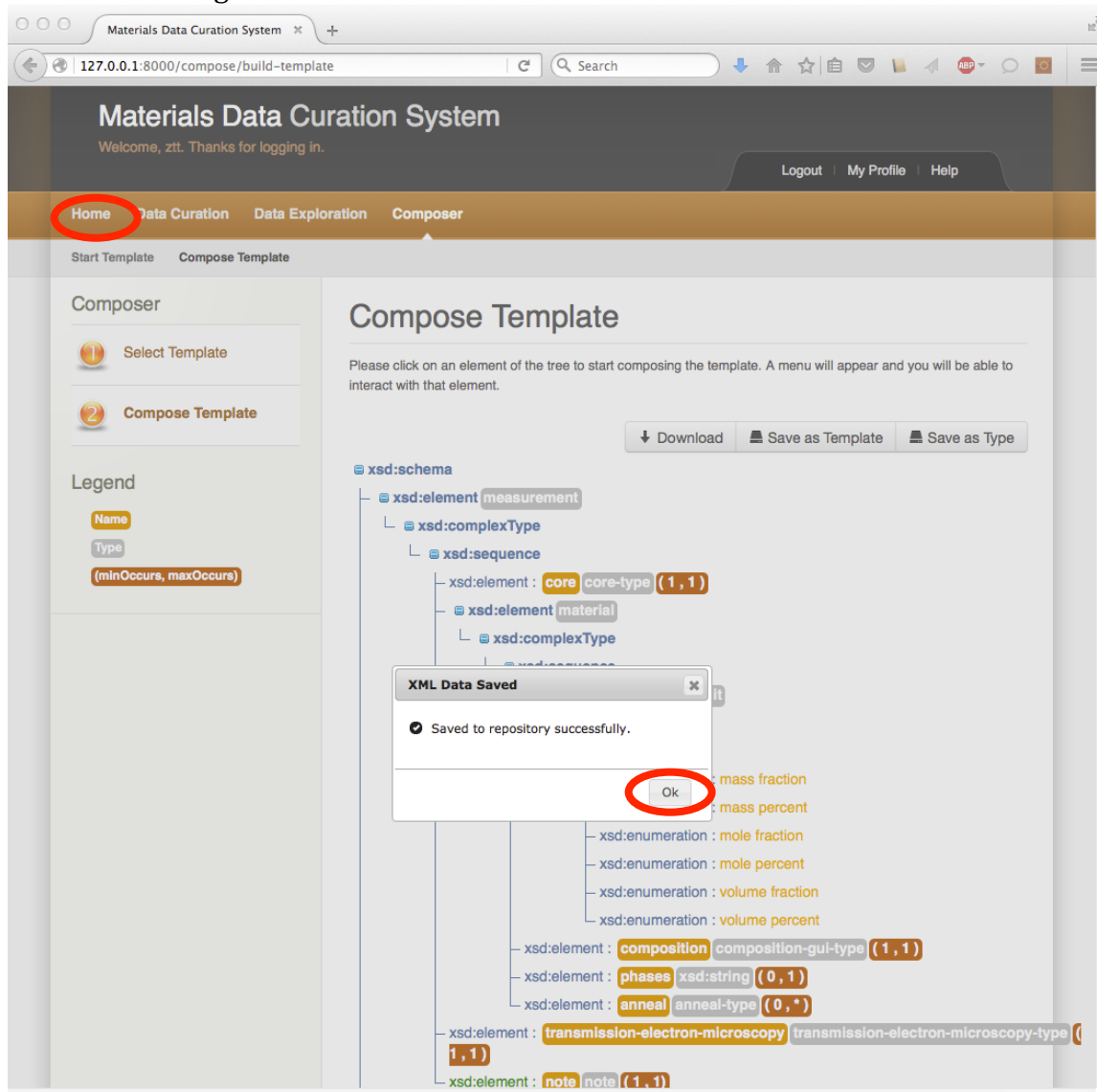
6: Scroll to the top and click “Save as Template”. Enter “TEM note” and click “save”.

The screenshot shows the 'Materials Data Curation System' interface. The browser address bar displays '127.0.0.1:8000/compose/build-template'. The page title is 'Materials Data Curation System' with a welcome message for 'admin'. The navigation bar includes 'Home', 'Data Curation', 'Data Exploration', and 'Composer'. The 'Composer' section has two tabs: 'Start Template' and 'Compose Template'. The 'Compose Template' tab is active, showing a tree view of an XSD schema. The tree structure is as follows:

- xsd:schema
  - xsd:element measurement
    - xsd:complexType
      - xsd:sequence
        - xsd:element core core-type (1,1)
        - xsd:element material
          - xsd:complexType
            - xsd:sequence
              - xsd:element quantity-unit
                - xsd:simpleType
                  - xsd:restriction
                    - xsd:enumeration mass fraction
                    - xsd:enumeration mass percent
                    - xsd:enumeration mole fraction
                    - xsd:enumeration mole percent
                    - xsd:enumeration volume fraction
                    - xsd:enumeration volume percent
            - xsd:element composition composition-gui-type (1,1)
            - xsd:element phase xsd:string (0,\*)
            - xsd:element anneal anneal-type (0,\*)
        - xsd:element transmission-electron-microscopy transmission-electron-microscopy-type (1,1)

At the top of the tree view, there are three buttons: 'Download', 'Save as Template' (circled in red), and 'Save as Type'. The 'Save as Template' button is highlighted with a red circle.

7: After selecting “Ok” click “home”



8: Click on “Data Curation” and set “TEM note” as the current template

The screenshot shows a web browser window with the address bar displaying "127.0.0.1:8000/curate/". The page title is "Materials Data Curation System". The navigation bar includes links for "Home", "Data Curation" (highlighted with a red circle), "Data Exploration", and "Composer". Below the navigation bar, there are tabs for "Select Template", "Enter Data", and "View Data". The "Select Template" tab is active, showing a "Select Template" page. On the left side of the page, there is a sidebar with three numbered steps: "1 Select Template", "2 Enter Data", and "3 View Data". The main content area is titled "Select Template" and contains instructions: "Select a template from the following table. Once you make your selection, start a new document or open an existing form or start from an uploaded document. It will automatically load the appropriate form and display it on the next page." Below the instructions, there are two tables: "Global Templates" and "User Defined Templates". The "Global Templates" table has columns for "Template name", "File name", and "Actions". It contains one row with "TEM-Tutorial" and "workshop-TEM.xsd", and an action button "Set as current template". The "User Defined Templates" table has columns for "Template name" and "Actions". It contains one row with "TEM note" and an action button "Set as current template", which is highlighted with a red circle. The footer of the page includes a copyright notice "© 2012 - 2016 Materials Data Curation System" and a link to "Privacy Policy".

Materials Data Curation System

Welcome, ztt. Thanks for logging in.

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Home **Data Curation** Data Exploration Composer

Select Template Enter Data View Data

Data Curation

- 1 Select Template
- 2 Enter Data
- 3 View Data

## Select Template

Select a template from the following table. Once you make your selection, start a new document or open an existing form or start from an uploaded document. It will automatically load the appropriate form and display it on the next page.

### Global Templates

| Template name | File name        | Actions                                 |
|---------------|------------------|---|
| TEM-Tutorial  | workshop-TEM.xsd | <a href="#">Set as current template</a> |

### User Defined Templates

| Template name | Actions                                 |
|---------------|---|
| TEM note      | <a href="#">Set as current template</a> |

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9: Select “Create a new document”. Enter “test-interface” and click “Start”. Verify “note” element was added to the template.

The screenshot shows the Materials Data Curation System interface. The browser address bar displays "127.0.0.1:8000/curate/enter-data". The page header includes the title "Materials Data Curation System" and a welcome message "Welcome, ztt. Thanks for logging in." The navigation bar contains links for "Home", "Data Curation", "Data Exploration", and "Composer". The "Data Curation" section is active, showing a sidebar with three steps: "1 Select Template", "2 Enter Data", and "3 View Data". The main content area is titled "Data Entry" and contains a paragraph explaining the form's purpose. Below the paragraph are three buttons: "Clear Fields", "Save Form", and "Download". The form itself is a tree structure with the following elements:

- measurement
  - core
  - material
  - transmission-electron-microscopy
  - note
    - title: Surface Preparation
    - date: [green checkmark]
    - text: Grind with 600 grit sandpaper, rot

A red circle highlights the "note" section and its sub-elements. The footer contains copyright information "© 2012 - 2016 Materials Data Curation System" and links for "Privacy Policy", "Terms of Use", and "Administration".