

## โครงสร้งและเทคโนโลยีที่ใช้





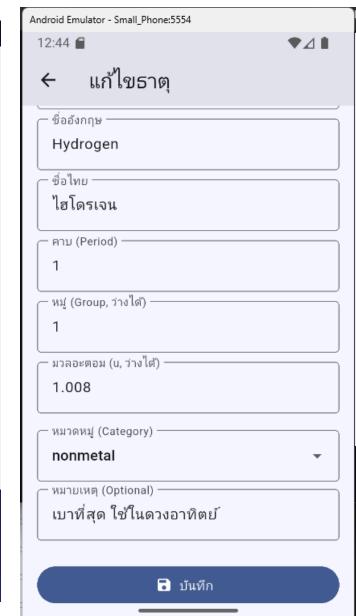


```
chemical_element.dart ×
chemicalelement > lib > features > element > data > 🕥 chemical_element.dart > 😭 ChemicalElement
  6 ElementCategory categoryFromString(String s) {
           case 'transitionMetal': return ElementCategory.transitionMetal;
 11
           case 'postTransitionMetal': return ElementCategory.postTransitionMetal;
 12
           case 'metalloid': return ElementCategory.metalloid;
           case 'nonmetal': return ElementCategory.nonmetal;
           case 'halogen': return ElementCategory.halogen;
           case 'nobleGas': return ElementCategory.nobleGas;
           case 'lanthanoid': return ElementCategory.lanthanoid;
           case 'actinoid': return ElementCategory.actinoid;
           default: return ElementCategory.unknown;
      class ChemicalElement {
        final int? id;
        final int atomicNumber:
                                     // เลขอะตอม (Z) 🔽
        final String symbol;
        final String nameEn;
                                     // ชื่ออังกฤษ
                                                     ~
        final String nameTh;
                                     // ชื่อไทย
                                                      \checkmark
        final int period;
                                     // คาบ
        final int? group;
         final ElementCategory category; // หมวดหม่
         final double? atomicMass; // มวลอะตอม
         final double? electronegativity;
         final double? density;
         final double? meltingK;
         final double? boilingK;
                                     // เกร็ด/บันทึกย่อ
         final String? note;
         ChemicalElement({
          this.id,
           required this.atomicNumber,
           required this.symbol,
           required this.nameEn,
           required this.nameTh,
           required this.period,
```

```
🔵 chemical_element.dart 🗙
chemicalelement > lib > features > element > data > 🦠 chemical_element.dart > 😭 ChemicalElement
 22 class ChemicalElement {
         ChemicalElement({
          tnis.meitingk,
           this.boilingK,
           this.note,
         });
         ChemicalElement copyWith({
           int? id,
           int? atomicNumber,
           String? symbol,
           String? nameEn,
           String? nameTh,
           int? period,
           int? group,
           ElementCategory? category,
           double? atomicMass,
           double? electronegativity,
           double? density,
           double? meltingK,
           double? boilingK,
           String? note,
         }) {
           return ChemicalElement(
             id: id ?? this.id,
             atomicNumber: atomicNumber ?? this.atomicNumber,
             symbol: symbol ?? this.symbol,
             nameEn: nameEn ?? this.nameEn,
             nameTh: nameTh ?? this.nameTh,
             period: period ?? this.period,
             group: group ?? this.group,
             category: category ?? this.category,
             atomicMass: atomicMass ?? this.atomicMass,
             electronegativity: electronegativity ?? this.electronegativity,
             density: density ?? this.density,
             meltingK: meltingK ?? this.meltingK,
             hoilingK: hoilingK >> this hoilingK
```

## Atoms and Elements





Android Emulator - Small_Phone:5554	
12:43	
$\leftarrow$	เพิ่มธาตุ
เลร	ขอะตอม (Z)
a o	มูลักษณ์ (Symbol)
ed e i	ganisek (Symbol)
ชื่อ	อังกฤษ
$\vdash$	
ชื่อ	ใทย
คา	ນ (Period)
หม่	(Group, ว่างได้)
มว	ลอะตอม (u, ว่างได้)
_ ил	เดหมู่ (Category)
nonmetal	

