

# ATGL-2370: SEALANTS

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## Cuyahoga Community College

**Viewing: ATGL-2370 : Sealants****Board of Trustees:**

March 2020

**Academic Term:**

Fall 2020

**Subject Code**

ATGL - Appld Indus Tech - Glazing

**Course Number:**

2370

**Title:**

Sealants

**Catalog Description:**

Instruction in use of sealants including terminology, properties, forms, classifications, and sealant selection; sealant application, testing, and remedial caulking; joint types and design; substrate preparation primers and backer rods; safety procedures and use of MSDS sheets.

**Credit Hour(s):**

2

**Lecture Hour(s):**

2

**Requisites****Prerequisite and Corequisite**

Departmental approval: admission to apprenticeship program.

**Outcomes****Course Outcome(s):**

Select appropriate type of caulk for specified job.

**Objective(s):**

1. Define and discuss sealant terminology, various sealant properties, and the factors of sealant selection.
2. Differentiate the various forms of sealant and the three classifications of sealant.

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**Course Outcome(s):**

Demonstrate safe and proper tooling of caulk joints for specified job.

**Objective(s):**

1. Perform sealant adhesion testing and basic remedial caulking.
2. Perform sealant application on various types of surfaces.
3. Interpret and use Material Safety Data Sheets (MSDS) for protection from hazardous materials and toxic exposures.
4. Properly clean and inspect tools used for caulking.

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**Methods of Evaluation:**

1. Quizzes
2. Exams

- 3. Classroom participation
- 4. Demonstration of project assignments

**Course Content Outline:**

- 1. Define and discuss terminology
  - a. Terminology
    - i. Accelerate
    - ii. Activator
    - iii. Catalyst
    - iv. Adhesion
    - v. Adhesion failure
    - vi. Air curing
    - vii. Ambient temperature
    - viii. Back up
    - ix. Bead
    - x. Bedding
    - xi. Bleeding
    - xii. Bond breaker
    - xiii. Cap Bead
    - xiv. Coefficient of expansion
    - xv. Cohesion
    - xvi. Cohesion failure
    - xvii. Compatible
    - xviii. Cure time
    - xix. Elastomer
    - xx. Filler
    - xxi. Heel bead
    - xxii. Immersion
    - xxiii. Joints
    - xxiv. Modulus
    - xxv. Primer
    - xxvi. Skin time
    - xxvii. Substrate
    - xxviii. ToE bead
    - xxix. Tooling
    - xxx. Two-part
    - xxxi. United inches
    - xxxii. Viscosity
  - b. Sealant selection
    - i. Putty
    - ii. Elastic glazing compounds
    - iii. Butyl
    - iv. Acrylic
    - v. Polysulfide
    - vi. Silicone
    - vii. Polyurethane
  - c. Sealant forms
    - i. Knife or tool
    - ii. Gunnable non-sagging
    - iii. Pourable self leveling
    - iv. Extruded tape
- 2. Sealant classifications and properties
  - a. Classifications
    - i. Low range
    - ii. Medium range
    - iii. High range
  - b. Properties

- i. Adhesion/cohesion
    - ii. Hardness
    - iii. Modulus
    - iv. Stress relaxation
    - v. Compression test
    - vi. Cure time
  - c. Sealant types
    - i. Oil based
    - ii. Latex based
    - iii. Butyl sealant
    - iv. Acrylic sealant
    - v. Polysulfide (one part)
    - vi. Polysulfide (two part)
    - vii. Urethane (one part)
    - viii. Urethane (two part)
    - ix. Silicone
- 3. Sealant testing
  - a. Joint type
    - i. Static
    - ii. Dynamic
  - b. Joint design
    - i. Substrate
    - ii. Width
    - iii. Depth
    - iv. Three-sided adhesion
    - v. Poorly designed joints
  - c. Substrate penetration
    - i. Proper cleaning
    - ii. Two rag wipe
    - iii. Solvents
    - iv. Primers
    - v. Brush on
    - vi. Wipe on
    - vii. MSDS
    - viii. Follow manufacturers instructions
  - d. Backer rod sizes
    - i. 3/8
    - ii. 5/8
    - iii. 7/8
    - iv. 1 1/8
    - v. 1 1/2
    - vi. 2
    - vii. 2 1/2
- 4. Sealant application
  - a. Applying sealant
    - i. Caulking gun
    - ii. Joint tooling
    - iii. High performance glass
    - iv. Cleaning caulking tools
    - v. Glazing compound putty and tape
- 5. Glazier protection
  - a. Job specifications
  - b. MSDS sheets
  - c. Proper PPE
  - d. Gloves
  - e. Glasses

- f. Ear plugs
- g. Hard hat

## Resources

International Brotherhood of Painters Allied Trades Joint Apprenticeship Training Fund. "Glaziers, Architectural Metal and Glass Workers Training Manual"

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Top of page

Key: 358