



Fastener Adhesives 2353, 2353Y

Technical Data Sheet

April 2009

Supersedes Technical Data Sheet dated December 2007

General Description



3M™ Fastener Adhesives 2353 (blue) and 2353Y (yellow) are microencapsulated, room-temperature curing adhesives that enhance the anchorage of threaded fasteners. The adhesives are designed to be coated on the fasteners and dried; they remain dormant until the shearing action of engaging the fastener into a nut or threaded cavity breaks the capsules and allows the adhesive to cure. Typical applications are fasteners for the engine compartment or safety-related parts.

This is a normal temp formula that is designed for applications where the service temperature will not exceed 116°C (240°F).

Physical Properties

Bulk adhesive	2353/2353Y
Solvent Base	Toluene

Bulk Adhesive Storage and Handling

Container Sizes	18.9 liter (5 gallon) pails
Shelf life	Fifteen months from date of manufacture. Six to fifteen months after receipt by customer, dependent on date of manufacture. Rotate inventory on FIFO (first-in, first-out) basis.
Storage conditions	Store pails at 4°- 38°C (40°- 100°F) Store in a facility rated for storage of flammable liquids. Check local codes. PROTECT FROM FREEZING. Storage below 12°C (32°F) for extended periods will cause precipitation of an ingredient which floats about the solvent. Stirring at room temperature will re-dissolve the precipitated ingredient.
Mix before use	Adhesive solids settle to bottom of pail. Mix prior to use. Use stirrer, pail-shaker or pail-tumbler rated for flammables.

Coated Fasteners Storage and Handling

Shelf life	One year from date of adhesive application Shelf life can be as long as four years, depending on the storage conditions. Fasteners which are more than one year from the date of adhesive application should be checked for performance prior to use.
Storage conditions	Store coated fasteners at 4°-38°C (40°- 100°F).

Technical Data Sheet

3M™ Fastener Adhesives 2353, 2353Y

Page 2

Performance Properties	Prevailing In Torque (PIT)	2353/2353Y
	Initial ¹	1 ft-lb (1.4 Nm)
	Break-Loose Torque (BLT)	
	Initial ¹	41 ft-lbs (55.8 Nm)
	Break-Away Torque (BAT)	
	Initial ¹	14 ft-lbs (19.0 Nm)
	Heat aging ²	No change (±10% of initial value)
	Cycles ³	No change (±10% of initial value)
	Water immersion ⁴	No change (±10% of initial value)
	Gasoline immersion ⁵	No change (±10% of initial value)
Hot motor oil immersion ⁶	No change (±10% of initial value)	
Transmission fluid immersion ⁷	No change (±10% of initial value)	
Anti-freeze immersion ⁸	No change (±10% of initial value)	
Prevailing Out Torque (POT)		
Initial ¹	11 ft-lbs (15.0 Nm)	

NOTE: These properties are representative of the products' performance, and are supported by laboratory test data. However, the values reported are not intended to be used for specification purposes. All testing, unless otherwise stated, was performed on 3/8" x 16" plain steel bolts with matching plain steel nuts.

1 24 hours at room temperature

2 3 weeks at 104°C (220°F)

3 Conditioned under 3 of the following cycles: 1 1/2 hours at -56°C (-68°F), 1 hour at 177°C (350°F), and 1 1/2 hours at 24°C (75°F)

4 Immersion in distilled water for 1 week at 24°C (75°F)

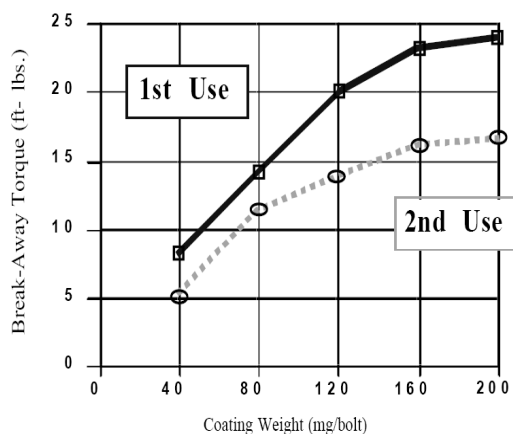
5 Immersion in regular, unleaded gasoline for 1 week at 24°C (75°F)

6 Immersion in SAE 30 motor oil for 1 week at 24°C (75°F)

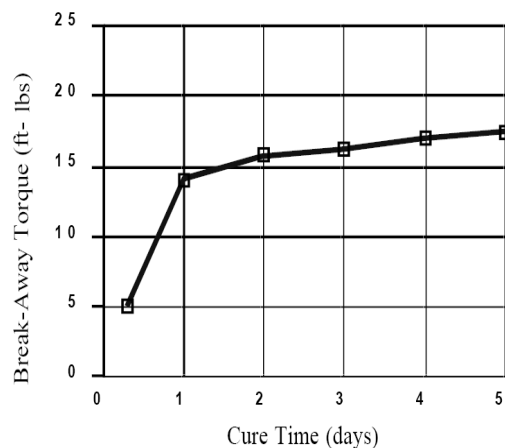
7 Immersion in transmission fluid for 1 week at 24°C (75°F)

8 Immersion in a 50% solution of ethylene glycol in water for 1 week at 49°C (120°F)

Break-Away Torque (initial) vs Adhesive Coating Weight



Break-Away Torque vs Cure Time (at room temperature)



Technical Data Sheet

3M™ Fastener Adhesives 2353, 2353Y

Page 3

Features, Advantages and Benefits	Features	Advantages	Benefits
	Epoxy chemistry	High torque values on coated fasteners Environmental resistance (to heat, automotive fluids, vibration, thermal and mechanical shock)	Robust, structural bonding performance
	Two-part (microencapsulated)	Extended shelf life (bulk adhesive and coated fasteners) Controlled reactivity (adhesive activates and cures upon insertion) Reusability (additional capsules break with each re-insertion)	Convenient handling by the end-users
	Flow coatable formula	Allows controlled application to fasteners; viscosity can be adjusted to achieve target coating weights Penetrates oil coatings Fast drying Bonds to a broad range of fastener finishes	Broad handling, dispensing and drying windows for the applicators

Technical Data Sheet

3M™ Fastener Adhesives 2353, 2353Y

Page 4

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