



Hilti HIT-RE500V3 Injectable Mortar (Anchorage) Submission Folder

| | |
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Injectable mortar HIT-RE 500 V3 NEW



BASE MATERIALS

- Concrete (cracked)
- Concrete (uncracked)
- Some types of natural stone

APPLICATIONS

- Structural connections with post-installed rebar (e.g. extension / connection to walls, slabs, stairs, columns, foundations, etc.)
- Substitution of misplaced / missing rebars or couplers
- Anchoring structural steel connections (e.g. steel columns, beams, etc.)
- Anchoring crash barriers, noise barriers, etc.
- Structural renovation of buildings, bridges and other civil structures, retrofitting and re-strengthening of concrete members possible

ADVANTAGES

- The fastest-curing epoxy mortar on the market
- Long working time allows greater flexibility during installation
- Also suitable for water-filled holes and underwater applications



Approvals

| | |
|------------|---|
| ETA | ETA 16/0142 HIT-RE 500 V3 injection mortar rebar_en |
| | ETA 16/0143 HIT-RE 500 V3 injection mortar 04/2016_en |

Approvals and test reports may apply to selected products only. Please refer to the documents for details.

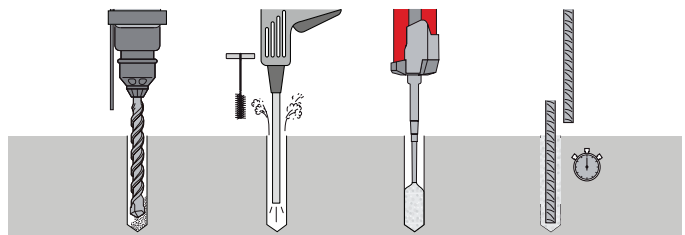
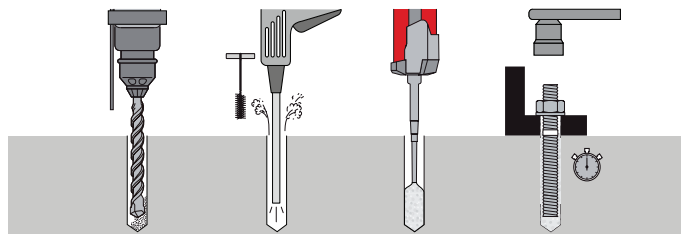
Technical data

| | |
|---|--|
| Material composition | Epoxy Adhesive |
| Base material condition | Dry, submerged, water-filled, wet |
| Tested/approved for diamond drilling | Yes |
| Seismic | Yes |
| Compatible cartridge holder | CB (Black) |
| Additional product information | Always wear eye protection and gloves while handling |

Curing time

| Temperature in the base material T [°C] | Maximum working time twork [h] | Minimum curing time tcure [h] |
|---|--------------------------------|-------------------------------|
| -5 to -1 | 2 | 168 |
| 0 to 4 | 2 | 48 |
| 5 to 9 | 2 | 24 |
| 10 to 14 | 1.5 | 16 |
| 15 to 19 | 1 | 16 |
| 20 to 24 | 0.5 | 7 |
| 25 to 29 | 20 min | 6 |
| 30 to 34 | 15 min | 5 |
| 35 to 39 | 12 min | 4.5 |
| 40 | 10 min | 4 |

¹⁾The curing time data are valid for dry base material only. In wet base material the curing times must be doubled.

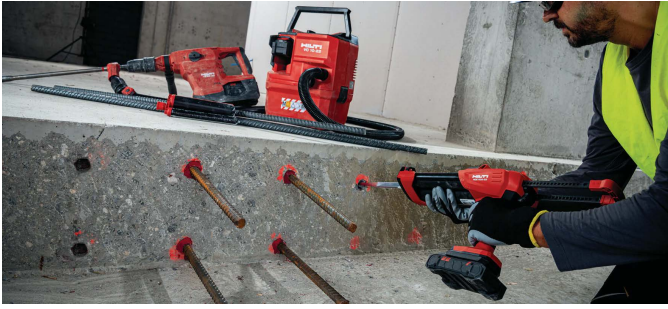


These are abbreviated instructions which may vary according to the application.

| Ordering designation | Content per can/cartridge | Package contents | Sales pack quantity | Item number |
|--|---------------------------|--|---------------------|-----------------------------|
| HIT-RE 500 V3/500/1 | 500 ml | 1x Foil pack, 1x Mixer, 1x Mixer extension | 1 pc | 2123406¹⁾ |
| Kit RE 500 V3/500/1 + HDE A22 Dispenser | 500 ml | 80x Foil pack, 1x Dispenser HDE 500-A22, 1x Cartridge Holder | 1 pc | 3733112 |

¹⁾ For detailed stock availability and lead time information please contact your Hilti representative. Please visit Hilti website for the latest item numbers and related products

Dispenser HDE 500-22



APPLICATIONS

- Injecting Hilti HIT epoxy or adhesive mortar for fastening anchor rods and rebar in concrete and masonry
- Dispensing Hilti firestop foams (only when packaged in compatible soft foil packs)

ADVANTAGES

- Faster anchoring
- Significantly reduce mortar wastage
- Improve fastener safety and reliability
- Repeat and resume functions
- On the Nuron battery platform

Technical data

| | |
|--------------------------------------|---|
| Power source type | Compact B22-55 or B22-85 battery pack |
| Dispenser type | Battery |
| Performance (at 20°C) | 55 sec (RE100 500 ml) |
| B22-55 Battery capacity | 100 cartridges (500 ml) |
| Dimension (L x W x H) | 440mm x 120mm x 230 mm |
| Modes available | Off / continuous / smart discard / measured volume dispensing with ml |
| Dispensing volume per trigger | 1 ml |

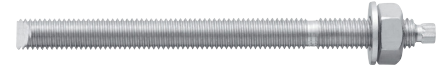
Order Now



| Ordering designation | Content per can/cartridge | Sales pack quantity | Item number |
|--|---|---------------------|----------------|
| HDE 500-22 + CB (Ultimate) 110V | 1x Cordl. dispenser HDE 500-22, 1x Cartridge holder HIT-CB, 1x Battery pack B 22-55, 1x Battery charger C 4-22 110V | 1 pc | 3880132 |
| HDE 500-22 + CR (Ultimate) 110V | 1x Cordl. dispenser HDE 500-22, 1x Cartridge holder HIT-CR, 1x Battery pack B 22-55, 1x Battery charger C 4-22 110V | 1 pc | 3880183 |
| HDE 500-22 + CB (Ultimate) 230V | 1x Cordl. dispenser HDE 500-22, 1x Cartridge holder HIT-CB, 1x Battery pack B 22-55, 1x Battery charger C 4-22 230V | 1 pc | 3880184 |
| HDE 500-22 + CR (Ultimate) 230V | 1x Cordl. dispenser HDE 500-22, 1x Cartridge holder HIT-CR, 1x Battery pack B 22-55, 1x Battery charger C 4-22 230V | 1 pc | 3880186 |
| Battery pack B 22-85 Li-ion | - | 1 pc | 2251351 |
| Battery charger C 4-22 110V | - | 1 pc | 2372874 |
| Battery charger C 4-22 230V | - | 1 pc | 2372873 |

Please visit Hilti website for the latest item numbers and related products

Anchor rod HAS (Galvanized, grade 5.8)



Approvals

| | |
|-----|--|
| ETA | ETA-18/0185 HVU2 bonded fastener for use in concrete |
|-----|--|

Approvals and test reports may apply to selected products only. Please refer to the documents for details.

Technical data

| | |
|----------------------|--|
| Head configuration | Externally threaded |
| Material composition | Steel, 5.8 grade, zinc-plated (min. 5µm) |
| Material, corrosion | Carbon steel, zinc-plated |
| Anchor type | Off-the-shelf rods |
| SAFEset | No |
| SAFEset | No |

Order Now



| Ordering designation | Drill bit diameter | Drilling depth | Max. fixture thickness at standard embedment depth | Base plate clearance hole | Sales pack quantity | Item number |
|----------------------|--------------------|----------------|--|---------------------------|---------------------|-------------|
| HAS-5.8 M8x80/14 | 10 mm | 80 mm | 14 mm | 9 mm | 20 pc | 66001 |
| HAS-5.8 M10x90/21 | 12 mm | 90 mm | 21 mm | 12 mm | 20 pc | 2170322 |
| HAS-5.8 M12x110/28 | 14 mm | 110 mm | 28 mm | 14 mm | 20 pc | 2170323 |
| HAS-5.8 M16x125/38 | 18 mm | 125 mm | 38 mm | 18 mm | 20 pc | 2170324 |

¹⁾ For detailed stock availability and lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Anchor rod HAS-U 5.8 (Galvanized, grade 5.8)



Approvals

| | |
|--------------|---|
| ETA | ETA 15/0882 for HIT-RE 100 injection mortar for anchoring applications (ETAG 001-05, Option 7) |
| | ETA 16/0143 for HIT-RE 500V3 injection mortar for anchoring applications (ETAG 001-05, Option 7) |
| ETA, seismic | ETA 12/0084 for HIT-HY 200-R injection mortar and standard element for anchoring applications (ETAG 001-05, Option 1) |

Approvals and test reports may apply to selected products only. Please refer to the documents for details.

Technical data

| | |
|----------------------|--|
| Head configuration | Externally threaded |
| Material composition | Steel, 5.8 grade, zinc-plated (min. 5µm) |
| Material, corrosion | Steel, zinc-plated |

Order Now



| Ordering designation | Anchor size | Anchor length | Drill bit diameter | Base plate clearance hole | Sales pack quantity | Item number |
|----------------------|-------------|---------------|--------------------|---------------------------|---------------------|-----------------------|
| HAS-U 5.8 M6x75 | M6 | 75mm | 8mm | 7mm | 20pc | 2223936 ¹⁾ |
| HAS-U 5.8 M6x105 | M6 | 105mm | 8mm | 7mm | 20pc | 2223704 ¹⁾ |
| HAS-U 5.8 M8x80 | M8 | 80mm | 10mm | 9mm | 20pc | 2223852 ¹⁾ |
| HAS-U 5.8 M8x110 | M8 | 110mm | 10mm | 9mm | 20pc | 2223853 |
| HAS-U 5.8 M8x150 | M8 | 150mm | 10mm | 9mm | 20pc | 2223854 ¹⁾ |
| HAS-U 5.8 M10x95 | M10 | 95mm | 12mm | 12mm | 20pc | 2223705 ¹⁾ |
| HAS-U 5.8 M10x115 | M10 | 115mm | 12mm | 12mm | 20pc | 2223706 ¹⁾ |
| HAS-U 5.8 M10x130 | M10 | 130mm | 12mm | 12mm | 20pc | 2223707 |
| HAS-U 5.8 M10x170 | M10 | 170mm | 12mm | 12mm | 20pc | 2223709 ¹⁾ |
| HAS-U 5.8 M10x190 | M10 | 190mm | 12mm | 12mm | 20pc | 2223820 ¹⁾ |
| HAS-U 5.8 M12x110 | M12 | 110mm | 14mm | 14mm | 20pc | 2223821 ¹⁾ |
| HAS-U 5.8 M12x120 | M12 | 120mm | 14mm | 14mm | 20pc | 2223822 ¹⁾ |
| HAS-U 5.8 M12x160 | M12 | 160mm | 14mm | 14mm | 20pc | 2223823 |
| HAS-U 5.8 M12x180 | M12 | 180mm | 14mm | 14mm | 20pc | 2223825 ¹⁾ |
| HAS-U 5.8 M12x200 | M12 | 200mm | 14mm | 14mm | 20pc | 2223826 ¹⁾ |
| HAS-U 5.8 M12x220 | M12 | 220mm | 14mm | 14mm | 20pc | 2223827 ¹⁾ |
| HAS-U 5.8 M12x260 | M12 | 260mm | 14mm | 14mm | 20pc | 2223867 ¹⁾ |
| HAS-U 5.8 M12x300 | M12 | 300mm | 14mm | 14mm | 20pc | 2223868 ¹⁾ |
| HAS-U 5.8 M16x150 | M16 | 150mm | 18mm | 18mm | 20pc | 2223828 ¹⁾ |
| HAS-U 5.8 M16x165 | M16 | 165mm | 18mm | 18mm | 20pc | 2223829 ¹⁾ |
| HAS-U 5.8 M16x190 | M16 | 190mm | 18mm | 18mm | 20pc | 2223830 |
| HAS-U 5.8 M16x220 | M16 | 220mm | 18mm | 18mm | 10pc | 2223869 ¹⁾ |

¹⁾ For detailed stock availability and lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

| Ordering designation | Anchor size | Anchor length | Drill bit diameter | Base plate clearance hole | Sales pack quantity | Item number |
|----------------------|-------------|---------------|--------------------|---------------------------|---------------------|-----------------------|
| HAS-U 5.8 M16x260 | M16 | 260mm | 18mm | 18mm | 10pc | 2223832 ¹⁾ |
| HAS-U 5.8 M16x300 | M16 | 300mm | 18mm | 18mm | 10pc | 2223870 |
| HAS-U 5.8 M16x350 | M16 | 350mm | 18mm | 18mm | 10pc | 2223871 ¹⁾ |
| HAS-U 5.8 M16x500 | M16 | 500mm | 18mm | 18mm | 10pc | 2223872 ¹⁾ |
| HAS-U 5.8 M20x180 | M20 | 180mm | 22mm | 22mm | 10pc | 2223873 ¹⁾ |
| HAS-U 5.8 M20x240 | M20 | 240mm | 22mm | 22mm | 10pc | 2223874 |
| HAS-U 5.8 M20x260 | M20 | 260mm | 22mm | 22mm | 10pc | 2223876 |
| HAS-U 5.8 M20x300 | M20 | 300mm | 22mm | 22mm | 10pc | 2223877 ¹⁾ |
| HAS-U 5.8 M20x350 | M20 | 350mm | 22mm | 22mm | 10pc | 2223878 ¹⁾ |
| HAS-U 5.8 M20x400 | M20 | 400mm | 22mm | 22mm | 10pc | 2223879 ¹⁾ |
| HAS-U 5.8 M20x480 | M20 | 480mm | 22mm | 22mm | 10pc | 2223880 |
| HAS-U 5.8 M24x300 | M24 | 300mm | 28mm | 26mm | 5pc | 2223881 |
| HAS-U 5.8 M24x450 | M24 | 450mm | 28mm | 26mm | 5pc | 2223882 ¹⁾ |

¹⁾ For detailed stock availability and lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

HAS-U 5.8 HDG



Approvals

| | |
|---------------------|---|
| ETA | ETA 15/0882 for HIT-RE 100 injection mortar for anchoring applications (ETAG 001-05, Option 7) |
| | ETA 16/0143 for HIT-RE 500V3 injection mortar for anchoring applications (ETAG 001-05, Option 7) |
| ETA, seismic | ETA 12/0084 for HIT-HY 200-R injection mortar and standard element for anchoring applications (ETAG 001-05, Option 1) |

Approvals and test reports may apply to selected products only. Please refer to the documents for details.

Technical data

| | |
|-----------------------------|---|
| Head configuration | Externally threaded |
| Material composition | Steel, 5.8 grade, zinc-plated (min. 43µm) |
| Material, corrosion | Steel, zinc-plated |

Order Now

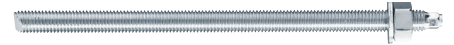


| Ordering designation | Anchor size | Anchor length | Drill bit diameter | Base plate clearance hole | Sales pack quantity | Item number |
|-----------------------|-------------|---------------|--------------------|---------------------------|---------------------|-----------------------|
| HAS-U 5.8 HDG M8x80 | M8 | 80mm | 10mm | 9mm | 20pc | 2223856 ¹⁾ |
| HAS-U 5.8 HDG M8x110 | M8 | 110mm | 10mm | 9mm | 20pc | 2223857 ¹⁾ |
| HAS-U 5.8 HDG M8x150 | M8 | 150mm | 10mm | 9mm | 20pc | 2223858 ¹⁾ |
| HAS-U 5.8 HDG M10x95 | M10 | 95mm | 12mm | 12mm | 20pc | 2223859 ¹⁾ |
| HAS-U 5.8 HDG M10x115 | M10 | 115mm | 12mm | 12mm | 20pc | 2223860 ¹⁾ |
| HAS-U 5.8 HDG M10x130 | M10 | 130mm | 12mm | 12mm | 20pc | 2223861 ¹⁾ |
| HAS-U 5.8 HDG M10x170 | M10 | 170mm | 12mm | 12mm | 20pc | 2223862 ¹⁾ |
| HAS-U 5.8 HDG M10x190 | M10 | 190mm | 12mm | 12mm | 20pc | 2223863 ¹⁾ |
| HAS-U 5.8 HDG M12x110 | M12 | 110mm | 14mm | 14mm | 20pc | 2223937 ¹⁾ |
| HAS-U 5.8 HDG M12x120 | M12 | 120mm | 14mm | 14mm | 20pc | 2223938 ¹⁾ |
| HAS-U 5.8 HDG M12x160 | M12 | 160mm | 14mm | 14mm | 20pc | 2223939 ¹⁾ |
| HAS-U 5.8 HDG M12x180 | M12 | 180mm | 14mm | 14mm | 20pc | 2223940 ¹⁾ |
| HAS-U 5.8 HDG M12x200 | M12 | 200mm | 14mm | 14mm | 20pc | 2223941 ¹⁾ |
| HAS-U 5.8 HDG M12x220 | M12 | 220mm | 14mm | 14mm | 20pc | 2223942 ¹⁾ |
| HAS-U 5.8 HDG M12x260 | M12 | 260mm | 14mm | 14mm | 20pc | 2223895 ¹⁾ |
| HAS-U 5.8 HDG M12x300 | M12 | 300mm | 14mm | 14mm | 20pc | 2223896 ¹⁾ |
| HAS-U 5.8 HDG M16x150 | M16 | 150mm | 18mm | 18mm | 20pc | 2223943 ¹⁾ |
| HAS-U 5.8 HDG M16x165 | M16 | 165mm | 18mm | 18mm | 20pc | 2223944 ¹⁾ |
| HAS-U 5.8 HDG M16x190 | M16 | 190mm | 18mm | 18mm | 20pc | 2223945 ¹⁾ |
| HAS-U 5.8 HDG M16x220 | M16 | 220mm | 18mm | 18mm | 10pc | 2223946 ¹⁾ |
| HAS-U 5.8 HDG M16x260 | M16 | 260mm | 18mm | 18mm | 10pc | 2223897 ¹⁾ |
| HAS-U 5.8 HDG M16x300 | M16 | 300mm | 18mm | 18mm | 10pc | 2223898 ¹⁾ |
| HAS-U 5.8 HDG M16x350 | M16 | 350mm | 18mm | 18mm | 10pc | 2223899 ¹⁾ |
| HAS-U 5.8 HDG M16x500 | M16 | 500mm | 18mm | 18mm | 10pc | 2223900 ¹⁾ |
| HAS-U 5.8 HDG M20x180 | M20 | 180mm | 22mm | 22mm | 10pc | 2223901 ¹⁾ |
| HAS-U 5.8 HDG M20x240 | M20 | 240mm | 22mm | 22mm | 10pc | 2223902 ¹⁾ |
| HAS-U 5.8 HDG M20x260 | M20 | 260mm | 22mm | 22mm | 10pc | 2223903 ¹⁾ |
| HAS-U 5.8 HDG M20x300 | M20 | 300mm | 22mm | 22mm | 10pc | 2223904 ¹⁾ |
| HAS-U 5.8 HDG M20x350 | M20 | 350mm | 22mm | 22mm | 10pc | 2223905 ¹⁾ |
| HAS-U 5.8 HDG M20x400 | M20 | 400mm | 22mm | 22mm | 10pc | 2223906 ¹⁾ |
| HAS-U 5.8 HDG M20x480 | M20 | 480mm | 22mm | 22mm | 10pc | 2223907 ¹⁾ |
| HAS-U 5.8 HDG M24x300 | M24 | 300mm | 28mm | 26mm | 5pc | 2223908 ¹⁾ |
| HAS-U 5.8 HDG M24x450 | M24 | 450mm | 28mm | 26mm | 5pc | 2223909 ¹⁾ |

¹⁾ For detailed stock availability and lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Anchor rod HAS-U 8.8 (Galvanized, grade 8.8)



| Approvals | |
|--------------|---|
| ETA | ETA 15/0882 for HIT-RE 100 injection mortar for anchoring applications (ETAG 001-05, Option 7) |
| | ETA 16/0143 for HIT-RE 500V3 injection mortar for anchoring applications (ETAG 001-05, Option 7) |
| ETA, seismic | ETA 12/0084 for HIT-HY 200-R injection mortar and standard element for anchoring applications (ETAG 001-05, Option 1) |

Approvals and test reports may apply to selected products only. Please refer to the documents for details.



| Technical data | |
|----------------------|--|
| Head configuration | Externally threaded |
| Material composition | Steel, 8.8 grade, zinc-plated (min. 5µm) |
| Material, corrosion | Steel, zinc-plated |

Order Now



| Ordering designation | Anchor size | Anchor length | Drill bit diameter | Base plate clearance hole | Sales pack quantity | Item number |
|----------------------|-------------|---------------|--------------------|---------------------------|---------------------|-----------------------|
| HAS-U 8.8 M8x150 | M8 | 150mm | 10mm | 9mm | 20pc | 2223855 ¹⁾ |
| HAS-U 8.8 M10x190 | M10 | 190mm | 12mm | 12mm | 20pc | 2223833 |
| HAS-U 8.8 M12x220 | M12 | 220mm | 14mm | 14mm | 20pc | 2223834 |
| HAS-U 8.8 M12x300 | M12 | 300mm | 14mm | 14mm | 20pc | 2223883 |
| HAS-U 8.8 M16x190 | M16 | 190mm | 18mm | 18mm | 20pc | 2223835 ¹⁾ |
| HAS-U 8.8 M16x300 | M16 | 300mm | 18mm | 18mm | 10pc | 2223884 ¹⁾ |
| HAS-U 8.8 M16x380 | M16 | 380mm | 18mm | 18mm | 10pc | 2223885 |
| HAS-U 8.8 M20x180 | M20 | 180mm | 22mm | 22mm | 10pc | 2223886 ¹⁾ |
| HAS-U 8.8 M20x260 | M20 | 260mm | 22mm | 22mm | 10pc | 2223887 ¹⁾ |
| HAS-U 8.8 M20x400 | M20 | 400mm | 22mm | 22mm | 10pc | 2223888 ¹⁾ |
| HAS-U 8.8 M24x300 | M24 | 300mm | 28mm | 26mm | 5pc | 2223889 ¹⁾ |
| HAS-U 8.8 M27x340 | M27 | 340mm | 30mm | 30mm | 5pc | 2223890 ¹⁾ |
| HAS-U 8.8 M30x380 | M30 | 380mm | 35mm | 33mm | 5pc | 2223891 ¹⁾ |
| HAS-U 8.8 M33x420 | M33 | 420mm | 37mm | 36mm | 5pc | 2223892 ¹⁾ |
| HAS-U 8.8 M36x460 | M36 | 460mm | 40mm | 39mm | 5pc | 2223893 ¹⁾ |
| HAS-U 8.8 M39x510 | M39 | 510mm | 42mm | 42mm | 5pc | 2223894 ¹⁾ |

¹⁾ For detailed stock availability and lead time information please contact your Hilti representative.

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HAS-U 8.8 HDG



| Approvals | |
|--------------|---|
| ETA | ETA 15/0882 for HIT-RE 100 injection mortar for anchoring applications (ETAG 001-05, Option 7) |
| | ETA 16/0143 for HIT-RE 500V3 injection mortar for anchoring applications (ETAG 001-05, Option 7) |
| ETA, seismic | ETA 12/0084 for HIT-HY 200-R injection mortar and standard element for anchoring applications (ETAG 001-05, Option 1) |

Approvals and test reports may apply to selected products only. Please refer to the documents for details.



| Technical data | |
|----------------------|---|
| Head configuration | Externally threaded |
| Material composition | Steel, 8.8 grade, zinc-plated (min. 43µm) |
| Material, corrosion | Steel, zinc-plated |

Order Now



| Ordering designation | Anchor size | Anchor length | Drill bit diameter | Base plate clearance hole | Sales pack quantity | Item number |
|-----------------------|-------------|---------------|--------------------|---------------------------|---------------------|-----------------------|
| HAS-U 8.8 HDG M8x150 | M8 | 150mm | 10mm | 9mm | 20pc | 2223947 ¹⁾ |
| HAS-U 8.8 HDG M10x190 | M10 | 190mm | 12mm | 12mm | 20pc | 2223948 ¹⁾ |
| HAS-U 8.8 HDG M12x220 | M12 | 220mm | 14mm | 14mm | 20pc | 2223949 ¹⁾ |
| HAS-U 8.8 HDG M12x300 | M12 | 300mm | 14mm | 14mm | 20pc | 2223910 ¹⁾ |
| HAS-U 8.8 HDG M16x190 | M16 | 190mm | 18mm | 18mm | 20pc | 2223703 ¹⁾ |
| HAS-U 8.8 HDG M16x300 | M16 | 300mm | 18mm | 18mm | 10pc | 2223911 ¹⁾ |
| HAS-U 8.8 HDG M16x380 | M16 | 380mm | 18mm | 18mm | 10pc | 2223912 ¹⁾ |
| HAS-U 8.8 HDG M20x180 | M20 | 180mm | 22mm | 22mm | 10pc | 2223913 ¹⁾ |
| HAS-U 8.8 HDG M20x260 | M20 | 260mm | 22mm | 22mm | 10pc | 2223914 ¹⁾ |
| HAS-U 8.8 HDG M20x400 | M20 | 400mm | 22mm | 22mm | 10pc | 2223915 ¹⁾ |
| HAS-U 8.8 HDG M24x300 | M24 | 300mm | 28mm | 26mm | 5pc | 2223916 ¹⁾ |
| HAS-U 8.8 HDG M27x340 | M27 | 340mm | 30mm | 30mm | 5pc | 2223917 ¹⁾ |
| HAS-U 8.8 HDG M30x380 | M30 | 380mm | 35mm | 33mm | 5pc | 2223918 ¹⁾ |

¹⁾ For detailed stock availability and lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Anchor rod HAS-U (A4 stainless steel)



| Approvals | |
|--------------|---|
| ETA | ETA 15/0882 for HIT-RE 100 injection mortar for anchoring applications (ETAG 001-05, Option 7) |
| | ETA 16/0143 for HIT-RE 500V3 injection mortar for anchoring applications (ETAG 001-05, Option 7) |
| ETA, seismic | ETA 12/0084 for HIT-HY 200-R injection mortar and standard element for anchoring applications (ETAG 001-05, Option 1) |

Approvals and test reports may apply to selected products only. Please refer to the documents for details.



| Technical data | |
|----------------------|---------------------|
| Head configuration | Externally threaded |
| Material composition | Steel, A4 (SS316) |
| Material, corrosion | Steel, stainless |

Order Now



| Ordering designation | Anchor size | Anchor length | Drill bit diameter | Base plate clearance hole | Sales pack quantity | Item number |
|----------------------|-------------|---------------|--------------------|---------------------------|---------------------|-----------------------|
| HAS-U A4 M8x80 | M8 | 80mm | 10mm | 9mm | 20pc | 2223864 |
| HAS-U A4 M8x110 | M8 | 110mm | 10mm | 9mm | 20pc | 2223865 |
| HAS-U A4 M8x150 | M8 | 150mm | 10mm | 9mm | 20pc | 2223866 |
| HAS-U A4 M10x95 | M10 | 95mm | 12mm | 9mm | 20pc | 2223836 |
| HAS-U A4 M10x115 | M10 | 115mm | 12mm | 12mm | 20pc | 2223837 ¹⁾ |
| HAS-U A4 M10x130 | M10 | 130mm | 12mm | 12mm | 20pc | 2223838 |
| HAS-U A4 M10x170 | M10 | 170mm | 12mm | 12mm | 20pc | 2223839 ¹⁾ |
| HAS-U A4 M10x190 | M10 | 190mm | 12mm | 12mm | 20pc | 2223840 |
| HAS-U A4 M10x220 | M10 | 220mm | 12mm | 12mm | 20pc | 2223841 ¹⁾ |
| HAS-U A4 M12x110 | M12 | 110mm | 14mm | 14mm | 20pc | 2223842 ¹⁾ |
| HAS-U A4 M12x120 | M12 | 120mm | 14mm | 14mm | 20pc | 2223843 ¹⁾ |
| HAS-U A4 M12x160 | M12 | 160mm | 14mm | 14mm | 20pc | 2223844 |
| HAS-U A4 M12x180 | M12 | 180mm | 14mm | 14mm | 20pc | 2223845 ¹⁾ |
| HAS-U A4 M12x200 | M12 | 200mm | 14mm | 14mm | 20pc | 2223846 ¹⁾ |
| HAS-U A4 M12x220 | M12 | 220mm | 14mm | 14mm | 20pc | 2223847 |
| HAS-U A4 M12x260 | M12 | 260mm | 14mm | 14mm | 20pc | 2223919 ¹⁾ |
| HAS-U A4 M12x300 | M12 | 300mm | 14mm | 14mm | 20pc | 2223920 |
| HAS-U A4 M16x150 | M16 | 150mm | 18mm | 18mm | 20pc | 2223848 ¹⁾ |
| HAS-U A4 M16x165 | M16 | 165mm | 18mm | 18mm | 20pc | 2223849 ¹⁾ |
| HAS-U A4 M16x190 | M16 | 190mm | 18mm | 18mm | 20pc | 2223850 |
| HAS-U A4 M16x220 | M16 | 220mm | 18mm | 18mm | 20pc | 2223851 |
| HAS-U A4 M16x260 | M16 | 260mm | 18mm | 18mm | 10pc | 2223921 ¹⁾ |
| HAS-U A4 M16x300 | M16 | 300mm | 18mm | 18mm | 10pc | 2223922 ¹⁾ |
| HAS-U A4 M16x350 | M16 | 350mm | 18mm | 18mm | 10pc | 2223923 ¹⁾ |
| HAS-U A4 M16x380 | M16 | 380mm | 18mm | 18mm | 10pc | 2223924 |
| HAS-U A4 M20x180 | M20 | 180mm | 22mm | 22mm | 10pc | 2223925 ¹⁾ |
| HAS-U A4 M20x240 | M20 | 240mm | 22mm | 22mm | 10pc | 2223926 |
| HAS-U A4 M20x260 | M20 | 260mm | 22mm | 22mm | 10pc | 2223927 |
| HAS-U A4 M20x300 | M20 | 300mm | 22mm | 22mm | 10pc | 2223928 ¹⁾ |
| HAS-U A4 M20x350 | M20 | 350mm | 22mm | 22mm | 10pc | 2223929 ¹⁾ |
| HAS-U A4 M20x400 | M20 | 400mm | 22mm | 22mm | 10pc | 2223930 ¹⁾ |
| HAS-U A4 M20x480 | M20 | 480mm | 22mm | 22mm | 10pc | 2223931 |
| HAS-U A4 M24x300 | M24 | 300mm | 28mm | 26mm | 5pc | 2223932 |
| HAS-U A4 M24x450 | M24 | 450mm | 28mm | 26mm | 5pc | 2223933 ¹⁾ |
| HAS-U A4 M27x340 | M27 | 340mm | 30mm | 30mm | 5pc | 2223934 ¹⁾ |
| HAS-U A4 M30x380 | M30 | 380mm | 35mm | 33mm | 5pc | 2223935 ¹⁾ |

¹⁾ For detailed stock availability and lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Internally threaded sleeve HIS-N (Galvanized, grade 5.8)



Approvals

| | |
|---------------------|---|
| ETA | ETA 04/0027 for HIT-RE 500 injection mortar for anchoring applications (ETAG 001-05, Option 7) |
| | ETA 04/0027 for HIT-RE 500 V3 injection mortar for anchoring applications (ETAG 001-05, Option 7) |
| ETA, seismic | ETA 12/0084 for HIT-HY 200-R injection mortar and standard element for anchoring applications (ETAG 001-05, Option 1) |

Approvals and test reports may apply to selected products only. Please refer to the documents for details.



Technical data

| | |
|-----------------------------|---|
| Head configuration | Inner thread |
| Material composition | Steel, 5.8 grade, zinc-plated (min. 5 µm) |
| Material, corrosion | Steel, zinc-plated |
| Anchor type | Internally threaded |

Order Now



| Ordering designation | Anchor size | Drill bit diameter | Drilling depth | Base plate clearance hole | Sales pack quantity | Item number |
|----------------------|-------------|--------------------|----------------|---------------------------|---------------------|----------------------------|
| HIS-N M8x90 | M8 | 14 mm | 90 mm | 9 mm | 10 pc | 258015¹⁾ |
| HIS-N M10x110 | M10 | 18 mm | 110 mm | 12 mm | 10 pc | 258016¹⁾ |
| HIS-N M12x125 | M12 | 22 mm | 125 mm | 14 mm | 5 pc | 258017¹⁾ |
| HIS-N M16x170 | M16 | 28 mm | 170 mm | 18 mm | 5 pc | 258018¹⁾ |
| HIS-N M20x205 | M20 | 32 mm | 205 mm | 22 mm | 5 pc | 258019¹⁾ |

¹⁾ This is a non-stock item. For detailed lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Internally threaded sleeve HIS-RN (A4 stainless steel)



Approvals

| | |
|---------------------|---|
| ETA | ETA 04/0027 for HIT-RE 500 injection mortar for anchoring applications (ETAG 001-05, Option 7) |
| | ETA 04/0027 for HIT-RE 500 V3 injection mortar for anchoring applications (ETAG 001-05, Option 7) |
| ETA, seismic | ETA 12/0084 for HIT-HY 200-R injection mortar and standard element for anchoring applications (ETAG 001-05, Option 1) |

Approvals and test reports may apply to selected products only. Please refer to the documents for details.



Technical data

| | |
|-----------------------------|---------------------|
| Head configuration | Inner thread |
| Material composition | Steel, A4 (SS316) |
| Material, corrosion | Steel, stainless |
| Anchor type | Internally threaded |

Order Now

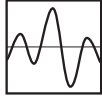


| Ordering designation | Anchor size | Drill bit diameter | Drilling depth | Base plate clearance hole | Sales pack quantity | Item number |
|--------------------------|-------------|--------------------|----------------|---------------------------|---------------------|----------------------------|
| HIS-RN M8x90 A4 | M8 | 14 mm | 90 mm | 9 mm | 10 pc | 258024¹⁾ |
| HIS-RN M10x110 A4 | M10 | 18 mm | 110 mm | 12 mm | 10 pc | 258025 |
| HIS-RN M12x125 A4 | M12 | 22 mm | 125 mm | 14 mm | 5 pc | 258026 |
| HIS-RN M16x170 A4 | M16 | 28 mm | 170 mm | 18 mm | 5 pc | 258027¹⁾ |
| HIS-RN M20x205 A4 | M20 | 32 mm | 205 mm | 22 mm | 5 pc | 258028¹⁾ |

¹⁾ This is a non-stock item. For detailed lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Anchor rod HIT-Z (Galvanized)



SAFESET



Approvals

ETA, seismic

ETA 12/0006 for HIT-HY 200-A injection mortar and HIT-Z(R) rod for anchoring applications (ETAG 001-05, Option 1)
ETA 12/0006 for HIT-HY 200-R injection mortar and HIT-Z(R) rod for anchoring applications (ETAG 001-05, Option 1)

Approvals and test reports may apply to selected products only. Please refer to the documents for details.

Technical data

| | |
|---|--------------------------------|
| Head configuration | Externally threaded |
| Material composition | Steel, zinc-plated (min. 5 µm) |
| Material, corrosion | Steel, zinc-plated |
| Anchor type | Off-the-shelf rods |
| Approvals / test reports | ETA |
| Tested/approved for diamond drilling | Yes |

Order Now **Watch Video**

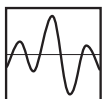


| Ordering designation | Anchor size | Drill bit diameter | Max. fixture thickness at standard embedment depth | Base plate clearance hole | Required tightening torque | Sales pack quantity | Item number |
|----------------------|-------------|--------------------|--|---------------------------|----------------------------|---------------------|-----------------------|
| HIT-Z M8x80 | M8 | 10 mm | 8 mm | 9 mm | 10 Nm | 40 pc | 2018364 ¹⁾ |
| HIT-Z M8x100 | M8 | 10 mm | 28 mm | 9 mm | 10 Nm | 40 pc | 2018365 |
| HIT-Z M8x120 | M8 | 10 mm | 48 mm | 9 mm | 10 Nm | 40 pc | 2018366 ¹⁾ |
| HIT-Z M10x95 | M10 | 12 mm | 22 mm | 12 mm | 25 Nm | 40 pc | 2018367 ¹⁾ |
| HIT-Z M10x115 | M10 | 12 mm | 42 mm | 12 mm | 25 Nm | 40 pc | 2018368 |
| HIT-Z M10x135 | M10 | 12 mm | 62 mm | 12 mm | 25 Nm | 40 pc | 2018369 |
| HIT-Z M10x160 | M10 | 12 mm | 87 mm | 12 mm | 25 Nm | 40 pc | 2018410 ¹⁾ |
| HIT-Z M12x105 | M12 | 14 mm | 29 mm | 14 mm | 40 Nm | 20 pc | 2018411 ¹⁾ |
| HIT-Z M12x140 | M12 | 14 mm | 64 mm | 14 mm | 40 Nm | 20 pc | 2018412 ¹⁾ |
| HIT-Z M12x155 | M12 | 14 mm | 79 mm | 14 mm | 40 Nm | 20 pc | 2018413 |
| HIT-Z M12x196 | M12 | 14 mm | 120 mm | 14 mm | 40 Nm | 20 pc | 2018415 ¹⁾ |
| HIT-Z M16x155 | M16 | 18 mm | 38 mm | 18 mm | 80 Nm | 12 pc | 2018416 ¹⁾ |
| HIT-Z M16x175 | M16 | 18 mm | 58 mm | 18 mm | 80 Nm | 12 pc | 2018417 ¹⁾ |
| HIT-Z M16x205 | M16 | 18 mm | 88 mm | 18 mm | 80 Nm | 12 pc | 2018418 ¹⁾ |
| HIT-Z M16x240 | M16 | 18 mm | 123 mm | 18 mm | 80 Nm | 12 pc | 2018419 ¹⁾ |
| HIT-Z M20x215 | M20 | 22 mm | 91 mm | 22 mm | 150 Nm | 6 pc | 2018420 |
| HIT-Z M20x250 | M20 | 22 mm | 126 mm | 22 mm | 150 Nm | 6 pc | 2018421 ¹⁾ |

¹⁾ This is a non-stock item. For detailed lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Anchor rod HIT-Z-R (A4 stainless steel)



SAFESET



Approvals

ETA, seismic

ETA 12/0006 for HIT-HY 200-A injection mortar and HIT-Z(R) rod for anchoring applications (ETAG 001-05, Option 1)
ETA 12/0006 for HIT-HY 200-R injection mortar and HIT-Z(R) rod for anchoring applications (ETAG 001-05, Option 1)

Approvals and test reports may apply to selected products only. Please refer to the documents for details.

Technical data

| | |
|---|---------------------|
| Head configuration | Externally threaded |
| Material composition | Steel, A4 (SS316) |
| Material, corrosion | Steel, stainless |
| Anchor type | Off-the-shelf rods |
| Approvals / test reports | ETA |
| Tested/approved for diamond drilling | Yes |



Order Now



| Ordering designation | Anchor size | Drill bit diameter | Max. fixture thickness at standard embedment depth | Required tightening torque | Sales pack quantity | Item number |
|----------------------|-------------|--------------------|--|----------------------------|---------------------|-----------------------|
| HIT-Z-R M8x80 | M8 | 10 mm | 8 mm | 10 Nm | 40 pc | 2018422 ¹⁾ |
| HIT-Z-R M8x100 | M8 | 10 mm | 28 mm | 10 Nm | 40 pc | 2018423 |
| HIT-Z-R M8x120 | M8 | 10 mm | 48 mm | 10 Nm | 40 pc | 2018424 ¹⁾ |
| HIT-Z-R M10x95 | M10 | 12 mm | 22 mm | 25 Nm | 40 pc | |
| HIT-Z-R M10x115 | M10 | 12 mm | 42 mm | 25 Nm | 40 pc | 2018426 |
| HIT-Z-R M10x135 | M10 | 12 mm | 62 mm | 25 Nm | 40 pc | 2018427 |
| HIT-Z-R M10x160 | M10 | 12 mm | 87 mm | 25 Nm | 40 pc | 2018428 ¹⁾ |
| HIT-Z-R M12x105 | M12 | 14 mm | 29 mm | 40 Nm | 20 pc | 2018429 ¹⁾ |
| HIT-Z-R M12x140 | M12 | 14 mm | 64 mm | 40 Nm | 20 pc | 2018430 ¹⁾ |
| HIT-Z-R M12x155 | M12 | 14 mm | 79 mm | 40 Nm | 20 pc | 2018431 |
| HIT-Z-R M12x196 | M12 | 14 mm | 120 mm | 40 Nm | 20 pc | 2018433 ¹⁾ |
| HIT-Z-R M16x155 | M16 | 18 mm | 38 mm | 80 Nm | 12 pc | 2018434 ¹⁾ |
| HIT-Z-R M16x175 | M16 | 18 mm | 58 mm | 80 Nm | 12 pc | 2018435 ¹⁾ |
| HIT-Z-R M16x205 | M16 | 18 mm | 88 mm | 80 Nm | 12 pc | 2018436 |
| HIT-Z-R M16x240 | M16 | 18 mm | 123 mm | 80 Nm | 12 pc | 2018437 ¹⁾ |
| HIT-Z-R M20x215 | M20 | 22 mm | 91 mm | 150 Nm | 6 pc | 2018438 ¹⁾ |
| HIT-Z-R M20x250 | M20 | 22 mm | 126 mm | 150 Nm | 6 pc | 2018439 |

¹⁾ This is a non-stock item. For detailed lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Safety glasses



Technical data

| | |
|---------------|---------------------|
| Lens | PC material |
| Thickness | 2.1 mm |
| Coating | Optidur NCH coating |
| Filter | 2C-1.2 |
| Impact energy | 45 m/s |

Order Now



| Ordering designation | Sales pack quantity | Item number |
|-----------------------------------|---------------------|-------------|
| Safety glasses PP EY-CA NCH clear | 1 pc | 2065449 |

Please visit Hilti website for the latest item numbers and related products

Accessories for blowing out



APPLICATIONS

- For fast and efficient removal of dust and debris from drilled holes of varying diameters and depths to allow correct installation of anchors and rebar

Technical data

| | |
|---|----------------------|
| Dispenser, setting tool, accessory, tester type | Cleaning accessories |
|---|----------------------|

Order Now



| Ordering designation | Sales pack quantity | Item number |
|------------------------------|---------------------|----------------------|
| Blow-out pump | 1 pc | 60579 |
| Extension tube HIT-VL 16/0.7 | 10 pc | 336646 ¹⁾ |

Please visit Hilti website for the latest item numbers and related products

HILTI SAFE^{SET} TECHNOLOGY

A small step for engineers.
And a giant leap forward for your next design.

Now you can design anchor rod and post-installed rebar connections with more confidence. Inadequately cleaning holes during installation can reduce the performance of conventional chemical anchor systems significantly. Hilti **SAFE^{SET}** Technology eliminates this factor almost entirely – in both cracked or uncracked concrete and with anchor rods or post-installed rebar.

APPLICATIONS

- Post-installed rebar connections for concrete slab, column or wall extensions
- Heavy-duty anchoring in cracked or uncracked concrete, e.g. for steel beams, column

WHAT IS SAFE^{SET}

Hilti **SAFE^{SET}** Technology eliminates the most load-affecting and time-consuming step in the installation process: cleaning the hole before injection of the adhesive. As a consequence, engineers can now have peace of mind because the specified application will perform on the jobsite as it has been designed in the plan.



HIT-RE 500 V3





HIT-HY 200-R



HIT-RE 100

SAFE^{SET} Application Ranges

| | | Thread rod size | M8 | M10 | M12 | M16 | M20 | M24 | M27 | M30 |
|--|--|-----------------|---------------------|--------|---------------------|--------|--------|--------|--------|--------|
| | | Drill hole dia. | (10mm) | (12mm) | (14mm) | (18mm) | (22mm) | (28mm) | (30mm) | (35mm) |
| Anchoring  <p>HIT-HY 200-R, standard drill bit and HIT-Z Rod (zero cleaning)</p> <p>HIT-HY 200-R, HIT-RE100, HIT-RE 500 V3, Hollow Drill Bits and HAS-E Rod, HAS-U Rod or HIT-V Rod (auto-cleaning)</p> | | | SAFE ^{SET} | | | | | | | |
| | | | | | SAFE ^{SET} | | | | | |
| Rebar  <p>HIT-HY 200-R, HIT-RE100, HIT-RE 500 V3, Hollow Drill Bits and rebar (auto-cleaning)</p> | | | SAFE ^{SET} | | | | | | | |
| | | Rebar size | Y8 | Y10 | Y12 | Y16 | Y20 | Y25 | Y32 | |
| | | Drill hole dia. | (12mm) | (14mm) | (16mm) | (20mm) | (25mm) | (32mm) | (40mm) | |

INTRODUCING HILTI SAFESET TECHNOLOGY

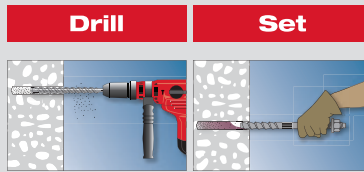
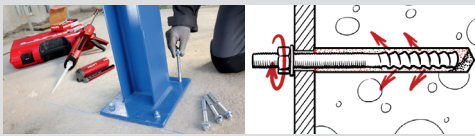
Once in a blue moon, something comes along with the power to accelerate the way you work.

SAFESET

SAFEset is a registered trade mark of HILTI.

1 ZERO CLEANING SOLUTION. HIT-Z anchor rods + HIT-HY 200-R

The new Hilti HIT-Z anchor rod works as a torque-controlled bonded anchor. Because of their unique shape, HIT-Z anchor rods, used in hammer-drilled holes in dry or water-saturated concrete above 5°C, are not affected by uncleaned holes. The benefits are clear: fewer steps and more productivity in anchoring applications.



Hilti **SAFESET** Technology
Up to 60% faster!



| | |
|--------------------------------|--------------------------------|
| Anchor diameter range | M8 to M20 |
| Material | Carbon or stainless steel (A4) |
| Embedment depth | Up to 12 times rod diameter |
| Concrete compressive strengths | C20/25 to C50/60 |
| Installation temperature range | 5°C to 40°C |



2 AUTO-CLEANING SOLUTION. Hollow drill bits + HIT-HY 200-R / HIT-RE 100 / HIT-RE 500 V3

Hilti TE-CD and TE-YD hollow drill bits, in conjunction with HIT-HY 200-R, HIT-RE 100 or HIT-RE 500 V3, make subsequent hole cleaning completely unnecessary. Dust is removed by the Hilti vacuum system while drilling is in progress for faster drilling and a virtually dustless working environment.



Hilti **SAFESET** Technology
Up to 60% faster!

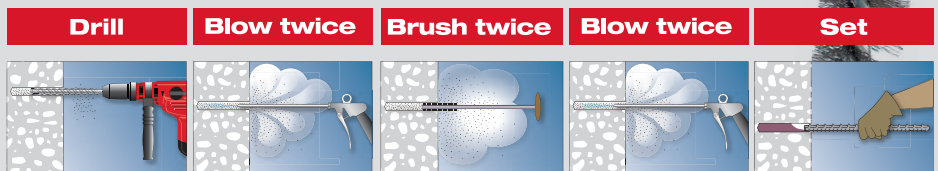


| | |
|--------------------------------|------------------|
| Rebar diameter range | Y8 to Y25 |
| Threaded rod diameters | M10 to M30 |
| Embedment depth | Up to 1000 mm |
| Concrete compressive strengths | C20/25 to C50/60 |
| Installation temperature range | -10°C to 40°C |

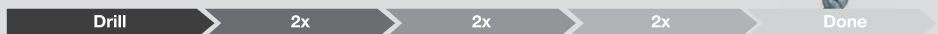


3 CONVENTIONAL SOLUTION. Brush and blow

Another option is to continue using the traditional hole cleaning method with any Hilti HIT system for superior performance.



*Cleaning Sequence when using manual dust pump are : blow twice , brush twice , blow twice.



| | |
|--------------------------------|---------------------------------|
| Rebar diameter range | Y8 to Y40 |
| Threaded rod diameters | M8 to M39 |
| Embedment depth | Up to 20 times element diameter |
| Concrete compressive strengths | C20/25 to C50/60 |
| Installation temperature range | -10°C to 40°C |



SUMMARY TABLE FOR CHEMICAL ANCHORS

| | | HIT-HY 200-R | HIT-RE 500 V3 | HIT-RE 100 | HIT-HY 270 |
|--------------------------------|---|---|---|---|---|
| | |  |  |  |  |
| HIT-Z |  | ■ | | | |
| HAS-U |  | ■ | ■ | ■ | ■ |
| HIS-N |  | ■ | ■ | ■ | ■ |
| Setting tool TE-C |  | | | | |
| Setting tool HIS-S |  | | | | |
| Mixer HIT-RE-M |  | ■ | ■ | ■ | ■ |
| Profi accessories for HIT |  | ■ | ■ | ■ | ■ |
| HIT-SC |  | | | | ■ |
| CR Cartridge holder |  | ■ | | | |
| CB Cartridge holder |  | | ■ | ■ | ■ |
| HDE Dispenser |  | ■ | ■ | ■ | ■ |
| TE-CD/YD Hollow drill bit |  | ■ | ■ | ■ | |
| VC 20/40 Vacuum cleaner |  | ■ | ■ | ■ | |
| Setting tool TE-C-E/ TE-Y-E |  | | | | |
| Blow-out pump |  | ■ | ■ | ■ | ■ |
| Steel brush |  | ■ | ■ | ■ | ■ |



HIT-RE 500 V3 injection mortar

Anchor design (ETAG001 / EN 1992-4) / Rods&Sleeves / Concrete

Injection mortar system



Foil pack: HIT-RE 500 V3
(available in 500ml cartridges)



Anchor rod:
HAS-U
HAS-U HDG
HAS-U A4
HAS-U HCR
AM 8.8 (HDG)
(M8-M39)



Internally threaded sleeve:
HIS-N
HIS-RN
(M8-M20)

Benefits

- **SafeSet** technology: Simplified method of borehole preparation using either Hilti hollow drill bit for hammer drilling or Roughening tool for diamond cored applications
- Suitable for cracked/non-cracked concrete C 20/25 to C 50/60
- High loading capacity
- Suitable for dry and water saturated concrete
- Hilti Technical Data for under water application
- High corrosion resistance
- Long working time at elevated temperatures
- Cures down to -5°C
- Odourless epoxy

Base material

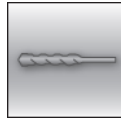


Concrete (non-cracked)



Concrete (cracked)

Installation conditions



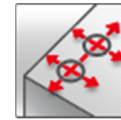
Hammer drilled holes



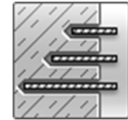
Diamond drilled holes

SAFE-ET

Hilti **SafeSet** technology

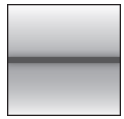


Small edge distance and spacing



Variable embedment depth

Load conditions



Static/quasi-static



Seismic, ETA-C1, C2



Fire resistance

Other information



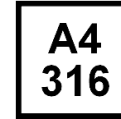
European Technical Assessment



CE conformity



PROFIS design Software



Corrosion resistance



High corrosion resistance ^{a)}

a) Applications only with HAS-U anchor rods

Approvals / certificates

| Description | Authority / Laboratory | No. / date of issue |
|---|------------------------|------------------------------|
| European Technical Assessment ^{a)} | CSTB | ETA-16/0143 / 2019-05-14 |
| Fire test report ^{b)} | MFPA Leipzig | GS 3.2/15-361-4 / 2016-08-04 |

a) All data given in this section according to ETA-16/0143, issue 2019-05-14.

b) Fire test report only available for HAS-U rods.

Recommended general notes

* The below clauses based on Hilti product qualifications are for references only. Selection of clauses by the engineer shall be based on the specific application needs. Please contact Hilti's technical team for further details.

- Two-component ready mix foil-pack epoxy resin (styrene-free).
- Approved for use in cracked and uncracked concrete under static, quasi-static (and seismic) loading
- Approved for use in diamond cored drilled holes. In such case the performance shall be on the same level of hammer drilled holes when proper installation steps are followed.
- Anchor shall be installed in combination with dust removal drilling accessories to ensure dust free environment and clean borehole.
- Anchor shall be approved for overhead installation.
- For overhead or deep embedment depth (>250mm) installation, specialized accessories shall be applied to ensure drill hole is fully grouted with no voids.
- Anchors shall obtain the European Technical Assessment (ETA) report.
- The anchor bolt design shall be done either according to "ETAG001 Annex C Design Method" issued by EOTA or "Guides on design of post-installed anchor bolt systems in Hong Kong" issued by HKISC.
- Anchors shall be tested in accordance to either ETAG-001 Annex A or ACI 355.2 by accredited laboratories under HOKLAS Mutual Recognition Arrangement (MRA) Partners.
- Anchor to be approved by NSF for use in contact with drinking water.

For seismic application:

- Approved for use under seismic actions category 1 (C1) and 2 (C2) according to EOTA TR045 "Design of Metal Anchors For Use In Concrete Under Seismic Actions, 02/2013".

For underwater application:

- Anchor shall be assessed applicable for underwater condition and technical data shall be supported on anchor load resistance and installation steps to ensure workmanship.

Static and quasi-static resistance (for a single anchor)

All data in this section applies to:

- Correct setting (See setting instruction)
- No edge distance and spacing influence
- Steel failure
- HAS-U anchor rod with strength class 5.8 and 8.8, AM anchor rod with strength class 8.8, HIS-N internally threaded insert with screw 8.8
- Base material thickness, as specified in the table
- Concrete C 20/25, $f_{ck,cube} = 25 \text{ N/mm}^2$
- Temperature range I: -40 °C to +40 °C
(min. base material temperature -40°C, max. long/short term base material temperature: +24°C/40°C)
- Short term loading. For long term loading please apply ψ_{sus} .
 - Hammer drilled holes, hammer drilled holes with hollow drill bit and diamond cored holes with Hilti roughening tool: $\psi_{sus} = 0.88$

Embedment depth ^{a)} and base material thickness

| Anchor size | ETA-16/0143, issue 2019-05-14 | | | | | | | | Hilti technical data | | |
|------------------------------|-------------------------------|-----|-----|-----|-----|-----|-----|-----|----------------------|-----|-----|
| | M8 | M10 | M12 | M16 | M20 | M24 | M27 | M30 | M33 | M36 | M39 |
| HAS-U | | | | | | | | | | | |
| Eff. anchorage depth [mm] | 80 | 90 | 110 | 125 | 170 | 210 | 240 | 270 | 300 | 330 | 360 |
| Base material thickness [mm] | 110 | 120 | 140 | 161 | 214 | 266 | 300 | 340 | 374 | 410 | 444 |
| HIS-N | | | | | | | | | | | |
| Eff. anchorage depth [mm] | 90 | 110 | 125 | 170 | 205 | - | - | - | - | - | - |
| Base material thickness [mm] | 120 | 150 | 170 | 230 | 270 | - | - | - | - | - | - |

a) The allowed range of embedment depth is shown in the setting



For hammer drilled holes, hollow drill bit^{a)} and diamond cored with roughening tool^{b)}:

Characteristic resistance

| Anchor size | | ETA-16/0143, issue 2019-05-14 | | | | | | | | Hilti technical data | | |
|-----------------------------|---------------|-------------------------------|------|------|-------|------|------|-----|-----|----------------------|-----|-----|
| | | M8 | M10 | M12 | M16 | M20 | M24 | M27 | M30 | M33 | M36 | M39 |
| Non-cracked concrete | | | | | | | | | | | | |
| Tension N_{Rk} | HAS-U 5.8 | 18,0 | 29,0 | 42,0 | 76,9 | 122 | 168 | 205 | 244 | 286 | 330 | 376 |
| | HAS-U 8.8, AM | 29,0 | 46,0 | 63,5 | 76,9 | 122 | 168 | 205 | 244 | 286 | 330 | 376 |
| | HAS-U A4 | 26,0 | 41,0 | 59,0 | 76,9 | 122 | 168 | 205 | 244 | 286 | 330 | 376 |
| | HAS-U HCR | 29,0 | 46,0 | 63,5 | 76,9 | 122 | 168 | 205 | 244 | 286 | 330 | 376 |
| | HIS-N 8.8 | 25,0 | 46,0 | 67,0 | 121,9 | 116 | - | - | - | - | - | - |
| Shear V_{Rk} | HAS-U 5.8 | 9,0 | 15,0 | 21,0 | 39,0 | 61,0 | 88,0 | 115 | 140 | 174 | 204 | 244 |
| | HAS-U 8.8, AM | 15,0 | 23,0 | 34,0 | 63,0 | 98,0 | 141 | 184 | 224 | 278 | 327 | 390 |
| | HAS-U A4 | 13,0 | 20,0 | 30,0 | 55,0 | 86,0 | 124 | 115 | 140 | 174 | 204 | 244 |
| | HAS-U HCR | 15,0 | 23,0 | 34,0 | 63,0 | 98,0 | 124 | 161 | 196 | 174 | 204 | 244 |
| | HIS-N 8.8 | 13,0 | 23,0 | 34,0 | 63,0 | 58,0 | - | - | - | - | - | - |
| Cracked concrete | | | | | | | | | | | | |
| Tension N_{Rk} | HAS-U 5.8 | 15,1 | 22,6 | 39,4 | 53,8 | 85,3 | 117 | 143 | 171 | - | - | - |
| | HAS-U 8.8, AM | 15,1 | 22,6 | 39,4 | 53,8 | 85,3 | 117 | 143 | 171 | - | - | - |
| | HAS-U A4 | 15,1 | 22,6 | 39,4 | 53,8 | 85,3 | 117 | 143 | 171 | - | - | - |
| | HAS-U HCR | 15,1 | 22,6 | 39,4 | 53,8 | 85,3 | 117 | 143 | 171 | - | - | - |
| | HIS-N 8.8 | 25,0 | 44,4 | 53,8 | 85,3 | 113 | - | - | - | - | - | - |
| Shear V_{Rk} | HAS-U 5.8 | 9,0 | 15,0 | 21,0 | 39,0 | 61,0 | 88,0 | 115 | 140 | - | - | - |
| | HAS-U 8.8, AM | 15,0 | 23,0 | 34,0 | 63,0 | 98,0 | 141 | 184 | 224 | - | - | - |
| | HAS-U A4 | 13,0 | 20,0 | 30,0 | 55,0 | 86,0 | 124 | 115 | 140 | - | - | - |
| | HAS-U HCR | 15,0 | 23,0 | 34,0 | 63,0 | 98,0 | 124 | 161 | 196 | - | - | - |
| | HIS-N 8.8 | 13,0 | 23,0 | 34,0 | 63,0 | 58,0 | - | - | - | - | - | - |

a) Hilti hollow drill bit available for element size M12-M30.

b) Roughening tools are available for element size M16-M30.

Design resistance

| Anchor size | | ETA-16/0143, issue 2019-05-14 | | | | | | | | Hilti tech. data | | |
|-----------------------------|-------------------|-------------------------------|------|------|------|------|------|------|------|------------------|------|-----|
| | | M8 | M10 | M12 | M16 | M20 | M24 | M27 | M30 | M33 | M36 | M39 |
| Non-cracked concrete | | | | | | | | | | | | |
| Tension N_{Rd} | HAS-U 5.8 | 12,0 | 19,3 | 28,0 | 45,8 | 72,7 | 99,8 | 122 | 146 | 142 | 164 | 187 |
| | HAS-U 8.8, AM 8.8 | 19,3 | 28,0 | 37,8 | 45,8 | 72,7 | 99,8 | 122 | 146 | 142 | 164 | 187 |
| | HAS-U A4 | 13,9 | 21,9 | 31,6 | 45,8 | 72,7 | 99,8 | 80,4 | 98,3 | 121 | 143 | 171 |
| | HAS-U HCR | 19,3 | 28,0 | 37,8 | 45,8 | 72,7 | 99,8 | 122 | 146 | 142 | 164 | 187 |
| | HIS-N 8.8 | 16,7 | 30,7 | 44,7 | 72,7 | 77,3 | - | - | - | - | - | - |
| Shear V_{Rd} | HAS-U 5.8 | 7,2 | 12,0 | 16,8 | 31,2 | 48,8 | 70,4 | 92,0 | 112 | 139 | 163 | 195 |
| | HAS-U 8.8, AM 8.8 | 12,0 | 18,4 | 27,2 | 50,4 | 78,4 | 113 | 147 | 179 | 222 | 262 | 312 |
| | HAS-U A4 | 8,3 | 12,8 | 19,2 | 35,3 | 55,1 | 79,5 | 48,3 | 58,8 | 73,1 | 85,7 | 103 |
| | HAS-U HCR | 12,0 | 18,4 | 27,2 | 50,4 | 78,4 | 70,9 | 92,0 | 112 | 87,0 | 102 | 122 |
| | HIS-N 8.8 | 10,4 | 18,4 | 27,2 | 50,4 | 46,4 | - | - | - | - | - | - |
| Cracked concrete | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|------------------|-------------------|------|------|------|------|------|------|------|------|------|---|---|---|
| Tension N_{Rd} | HAS-U 5.8 | [kN] | 10,1 | 15,1 | 26,3 | 32,1 | 50,9 | 69,9 | 85,4 | 102 | - | - | - |
| | HAS-U 8.8, AM 8.8 | | 10,1 | 15,1 | 26,3 | 32,1 | 50,9 | 69,9 | 85,4 | 102 | - | - | - |
| | HAS-U A4 | | 10,1 | 15,1 | 26,3 | 32,1 | 50,9 | 69,9 | 80,4 | 98,3 | - | - | - |
| | HAS-U HCR | | 10,1 | 15,1 | 26,3 | 32,1 | 50,9 | 69,9 | 85,4 | 102 | - | - | - |
| | HIS-N 8.8 | | 16,7 | 26,5 | 32,1 | 50,9 | 67,4 | - | - | - | - | - | - |
| Shear V_{Rd} | HAS-U 5.8 | [kN] | 7,2 | 12,0 | 16,8 | 31,2 | 48,8 | 70,4 | 92,0 | 112 | - | - | - |
| | HAS-U 8.8, AM 8.8 | | 12,0 | 18,4 | 27,2 | 50,4 | 78,4 | 113 | 147 | 179 | - | - | - |
| | HAS-U A4 | | 8,3 | 12,8 | 19,2 | 35,3 | 55,1 | 79,5 | 48,3 | 58,8 | - | - | - |
| | HAS-U HCR | | 12,0 | 18,4 | 27,2 | 50,4 | 78,4 | 70,9 | 92,0 | 112 | - | - | - |
| | HIS-N 8.8 | | 10,4 | 18,4 | 27,2 | 50,4 | 46,4 | - | - | - | - | - | - |

- 1) Hilti hollow drill bit available for element size M12-M30.
 2) Roughening tools are available for element size M16-M30.

Recommended loads ^{a)}

| Anchor size | | | ETA-16/0143, issue 2019-05-14 | | | | | | | Additional Hilti technical data | | | |
|-----------------------------|---------------|------|-------------------------------|------|------|------|------|------|------|---------------------------------|------|-------|-------|
| | | | M8 | M10 | M12 | M16 | M20 | M24 | M27 | M30 | M33 | M36 | M39 |
| Non-cracked concrete | | | | | | | | | | | | | |
| Tension N_{Rec} | HAS-U 5.8 | [kN] | 6,0 | 9,7 | 14,0 | 25,6 | 40,7 | 56,0 | 68,3 | 81,3 | 95,3 | 110,0 | 125,3 |
| | HAS-U 8.8, AM | | 9,7 | 15,3 | 21,2 | 25,6 | 40,7 | 56,0 | 68,3 | 81,3 | 95,3 | 110,0 | 125,3 |
| | HAS-U A4 | | 8,7 | 13,7 | 19,7 | 25,6 | 40,7 | 56,0 | 68,3 | 81,3 | 95,3 | 110,0 | 125,3 |
| | HAS-U HCR | | 9,7 | 15,3 | 21,2 | 25,6 | 40,7 | 56,0 | 68,3 | 81,3 | 95,3 | 110,0 | 125,3 |
| | HIS-N 8.8 | | 8,3 | 15,3 | 22,3 | 40,6 | 38,7 | - | - | - | - | - | - |
| Shear V_{Rec} | HAS-U 5.8 | [kN] | 3,0 | 5,0 | 7,0 | 13,0 | 20,3 | 29,3 | 38,3 | 46,7 | 58,0 | 68,0 | 81,3 |
| | HAS-U 8.8, AM | | 5,0 | 7,7 | 11,3 | 21,0 | 32,7 | 47,0 | 61,3 | 74,7 | 92,7 | 109,0 | 130,0 |
| | HAS-U A4 | | 4,3 | 6,7 | 10,0 | 18,3 | 28,7 | 41,3 | 38,3 | 46,7 | 58,0 | 68,0 | 81,3 |
| | HAS-U HCR | | 5,0 | 7,7 | 11,3 | 21,0 | 32,7 | 41,3 | 53,7 | 65,3 | 58,0 | 68,0 | 81,3 |
| | HIS-N 8.8 | | 4,3 | 7,7 | 11,3 | 21,0 | 19,3 | - | - | - | - | - | - |
| Cracked concrete | | | | | | | | | | | | | |
| Tension N_{Rec} | HAS-U 5.8 | [kN] | 5,0 | 7,5 | 13,1 | 17,9 | 28,4 | 39,0 | 47,7 | 57,0 | - | - | - |
| | HAS-U 8.8, AM | | 5,0 | 7,5 | 13,1 | 17,9 | 28,4 | 39,0 | 47,7 | 57,0 | - | - | - |
| | HAS-U A4 | | 5,0 | 7,5 | 13,1 | 17,9 | 28,4 | 39,0 | 47,7 | 57,0 | - | - | - |
| | HAS-U HCR | | 5,0 | 7,5 | 13,1 | 17,9 | 28,4 | 39,0 | 47,7 | 57,0 | - | - | - |
| | HIS-N 8.8 | | 8,3 | 14,8 | 17,9 | 28,4 | 37,7 | - | - | - | - | - | - |
| Shear V_{Rec} | HAS-U 5.8 | [kN] | 3,0 | 5,0 | 7,0 | 13,0 | 20,3 | 29,3 | 38,3 | 46,7 | - | - | - |
| | HAS-U 8.8, AM | | 5,0 | 7,7 | 11,3 | 21,0 | 32,7 | 47,0 | 61,3 | 74,7 | - | - | - |
| | HAS-U A4 | | 4,3 | 6,7 | 10,0 | 18,3 | 28,7 | 41,3 | 38,3 | 46,7 | - | - | - |
| | HAS-U HCR | | 5,0 | 7,7 | 11,3 | 21,0 | 32,7 | 41,3 | 53,7 | 65,3 | - | - | - |
| | HIS-N 8.8 | | 4,3 | 7,7 | 11,3 | 21,0 | 19,3 | - | - | - | - | - | - |

- a) With overall partial safety factor for action $\gamma=3,0$. The partial safety factors for action depend on the type of loading and shall be taken from national regulations.

For diamond drilling: ^{a)}

Characteristic resistance

| Anchor size | | | M8 | M10 | M12 | M16 | M20 | M24 | M27 | M30 |
|-----------------------------|-----------|------|------|------|------|------|------|------|-----|-----|
| Non-cracked concrete | | | | | | | | | | |
| Tension N_{Rk} | HAS-U 5.8 | [kN] | 18,0 | 29,0 | 42,0 | 76,9 | 122 | 167 | 205 | 244 |
| Shear V_{Rk} | HAS-U 5.8 | [kN] | 9,0 | 15,0 | 21,0 | 39,0 | 61,0 | 88,0 | 115 | 140 |

- a) No data for HIS-N when diamond coring without roughening tools



Design resistance

| Anchor size | | | M8 | M10 | M12 | M16 | M20 | M24 | M27 | M30 |
|-----------------------------|-----------|------|------|------|------|------|------|------|------|-----|
| Non-cracked concrete | | | | | | | | | | |
| Tension N_{Rd} | HAS-U 5.8 | [kN] | 12,0 | 19,3 | 28,0 | 32,7 | 51,9 | 71,3 | 87,1 | 104 |
| Shear V_{Rd} | HAS-U 5.8 | [kN] | 7,2 | 12,0 | 16,8 | 31,2 | 48,8 | 70,4 | 92,0 | 112 |

a) No data for HIS-N when diamond coring without roughening tools

Recommended loads ^{b)}

| Anchor size | | | M8 | M10 | M12 | M16 | M20 | M24 | M27 | M30 |
|-----------------------------|-----------|------|-----|-----|------|------|------|------|------|------|
| Non-cracked concrete | | | | | | | | | | |
| Tensile N_{Rec} | HAS-U 5.8 | [kN] | 6,0 | 9,7 | 14,0 | 25,6 | 40,7 | 55,7 | 68,3 | 81,3 |
| Shear V_{Rec} | HAS-U 5.8 | [kN] | 3,0 | 5,0 | 7,0 | 13,0 | 20,3 | 29,3 | 38,3 | 46,7 |

a) No data for HIS-N when diamond coring without roughening tools

b) With overall partial safety factor for action $\gamma=1,4$. The partial safety factors for action depend on the type of loading and shall be taken from national regulations.

Materials

Mechanical properties for HAS-U

| Anchor size | | ETA-16/0143, issue 2019-05-14 | | | | | | | | Hilti Technical data | | |
|-----------------------------------|----------------------------------|-------------------------------|------|------|-----|-----|-----|------|------|----------------------|------|------|
| | | M8 | M10 | M12 | M16 | M20 | M24 | M27 | M30 | M33 | M36 | M39 |
| Nominal tensile strength f_{uk} | HAS-U 5.8(F) | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 |
| | HAS-U 8.8(F) | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 |
| | AM 8.8(HDG) [N/mm ²] | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 |
| | HAS-U A4 | 700 | 700 | 700 | 700 | 700 | 700 | 500 | 500 | 500 | 500 | 500 |
| | HAS-U HCR | 800 | 800 | 800 | 800 | 800 | 700 | 700 | 700 | 500 | 500 | 500 |
| Yield strength f_{yk} | HAS-U 5.8(F) | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 |
| | HAS-U 8.8(F) | 640 | 640 | 640 | 640 | 640 | 640 | 640 | 640 | 640 | 640 | 640 |
| | AM 8.8(HDG) [N/mm ²] | 640 | 640 | 640 | 640 | 640 | 640 | 640 | 640 | 640 | 640 | 640 |
| | HAS-U A4 | 450 | 450 | 450 | 450 | 450 | 450 | 210 | 210 | 210 | 210 | 210 |
| | HAS-U HCR | 640 | 640 | 640 | 640 | 640 | 400 | 400 | 400 | 250 | 250 | 250 |
| Stressed cross-section A_s | HAS-U AM 8.8 [mm ²] | 36,6 | 58,0 | 84,3 | 157 | 245 | 353 | 459 | 561 | 694 | 817 | 976 |
| Moment of resistance W | HAS-U AM 8.8 [mm ³] | 31,2 | 62,3 | 109 | 277 | 541 | 935 | 1387 | 1874 | 2579 | 3294 | 4301 |

Material quality for HAS-U

| Part | Material |
|-------------------------------|---|
| Zinc coated steel | |
| Threaded rod, HAS-U 5.8 (HDG) | Strength class 5.8; Elongation at fracture $A_5 > 8\%$ ductile Electroplated zinc coated $\geq 5\mu\text{m}$; (F) hot dip galvanized $\geq 45\mu\text{m}$ |
| Threaded rod, HAS-U 8.8 (HDG) | Strength class 8.8; Elongation at fracture $A_5 > 12\%$ ductile Electroplated zinc coated $\geq 5\mu\text{m}$; (F) hot dip galvanized $\geq 45\mu\text{m}$ |
| Hilti Meter rod, AM 8.8 (HDG) | Strength class 8.8; Elongation at fracture $A_5 > 12\%$ ductile Electroplated zinc coated $\geq 5\mu\text{m}$ (HDG) hot dip galvanized $\geq 45\mu\text{m}$ |

| | |
|---------------------------------------|---|
| Washer | Electroplated zinc coated $\geq 5 \mu\text{m}$, hot dip galvanized $\geq 45 \mu\text{m}$ |
| Nut | Strength class of nut adapted to strength class of threaded rod. Electroplated zinc coated $\geq 5\mu\text{m}$, hot dip galvanized $\geq 45 \mu\text{m}$ |
| Stainless Steel | |
| Threaded rod, HAS-U A4 | Strength class 70 for $\leq \text{M}24$ and strength class 50 for $> \text{M}24$; Elongation at fracture A5 $> 8\%$ ductile Stainless steel 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362 |
| Washer | Stainless steel 1.4401, 1.4404, 1.4578, 1.4571, 1.4439, 1.4362 EN 10088-1:2014 |
| Nut | Stainless steel 1.4401, 1.4404, 1.4578, 1.4571, 1.4439, 1.4362 EN 10088-1:2014 |
| High corrosion resistant steel | |
| Threaded rod, HAS-U HCR | Strength class 80 for $\leq \text{M}20$ and class 70 for $> \text{M}20$, Elongation at fracture A5 $> 8\%$ ductile High corrosion resistance steel 1.4529; 1.4565; |
| Washer | High corrosion resistant steel 1.4529, 1.4565 EN 10088-1:2014 |
| Nut | High corrosion resistant steel 1.4529, 1.4565 EN 10088-1:2014 |

Material quality for HIS-N

| Part | Material | |
|--------|--------------------------|---|
| HIS-N | Internal threaded sleeve | C-steel 1.0718; Steel galvanized $\geq 5 \mu\text{m}$ |
| | Screw 8.8 | Strength class 8.8, A5 $> 8\%$ Ductile; Steel galvanized $\geq 5 \mu\text{m}$ |
| HIS-RN | Internal threaded sleeve | Stainless steel 1.4401,1.4571 |
| | Screw 70 | Strength class 70, A5 $> 8\%$ Ductile Stainless steel 1.4401; 1.4404, 1.4578; 1.4571; 1.4439; 1.4362 |

Setting information

Installation temperature

-5°C to +40°C

Service temperature range

Hilti HIT-RE 500 V3 injection mortar may be applied in the temperature ranges given below. An elevated base material temperature may lead to a reduction of the design bond resistance.

| Temperature range | Base material temperature | Max. long term base material temperature | Max. short term base material temperature |
|----------------------|---------------------------|--|---|
| Temperature range I | -40 °C to +40 °C | +24 °C | +40 °C |
| Temperature range II | -40 °C to +70 °C | +43 °C | +70 °C |

Max short term base material temperature

Short-term elevated base material temperatures are those that occur over brief intervals, e.g. as a result of diurnal cycling.

Max long term base material temperature

Long-term elevated base material temperatures are roughly constant over significant periods of time.

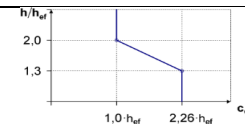
Working time and curing time

| Temperature of the base material T | Working time t_{work} | Minimum curing time $t_{cure}^{1)}$ |
|---------------------------------------|----------------------------|--|
| -5 °C to -1 °C | 2 h | 168 h |
| 0 °C to 4 °C | 2 h | 48 h |
| 5 °C to 9 °C | 2 h | 24 h |
| 10 °C to 14 °C | 1,5 h | 16 h |
| 15 °C to 19 °C | 1 h | 12 h |
| 20 °C to 24 °C | 30 min | 7 h |
| 25 °C to 29 °C | 20 min | 6 h |
| 30 °C to 34 °C | 15 min | 5 h |
| 35 °C to 39 °C | 12 min | 4,5 h |
| 40 °C | 10 min | 4 h |

1) The curing time data are valid for dry base material only. In wet base material, the curing times must be doubled.

Setting details for HAS-U

| Anchor size | | ETA-16/0143, issue 2019-05-14 | | | | | | | | Hilti Technical data | | |
|--|-------------------|---|-----|-----|-----|------------------|-----|-----|-----|----------------------|-----|-----|
| | | M8 | M10 | M12 | M16 | M20 | M24 | M27 | M30 | M33 | M36 | M39 |
| Nominal diameter of drill bit | d_0 [mm] | 10 | 12 | 14 | 18 | 22 | 28 | 30 | 35 | 37 | 40 | 42 |
| Effective anchorage and drill hole depth range ^{a)} | $h_{ef,min}$ [mm] | 60 | 60 | 70 | 80 | 90 | 96 | 108 | 120 | 132 | 144 | 156 |
| | $h_{ef,max}$ [mm] | 160 | 200 | 240 | 320 | 400 | 480 | 540 | 600 | 660 | 720 | 780 |
| Minimum base material thickness | h_{min} [mm] | $h_{ef} + 30 \text{ mm}$ $\geq 100 \text{ mm}$ | | | | $h_{ef} + 2 d_0$ | | | | | | |
| Max. torque moment | T_{max} [Nm] | 10 | 20 | 40 | 80 | 150 | 200 | 270 | 300 | 330 | 360 | 390 |
| Minimum spacing | s_{min} [mm] | 40 | 50 | 60 | 75 | 90 | 115 | 120 | 140 | 165 | 180 | 195 |
| Min. edge distance | c_{min} [mm] | 40 | 45 | 45 | 50 | 55 | 60 | 75 | 80 | 165 | 180 | 195 |
| Critical spacing for splitting failure | $s_{cr,sp}$ [mm] | $2 c_{cr,sp}$ | | | | | | | | | | |
| Critical edge distance for splitting failure ^{b)} | $c_{cr,sp}$ [mm] | $1,0 \cdot h_{ef}$ for $h / h_{ef} \geq 2,0$ | | | | | | | | | | |
| | | $4,6 h_{ef} - 1,8 h$ for $2,0 > h / h_{ef} > 1,3$ | | | | | | | | | | |
| | | $2,26 h_{ef}$ for $h / h_{ef} \leq 1,3$ | | | | | | | | | | |
| Critical spacing for concrete cone failure | $s_{cr,N}$ [mm] | $2 c_{cr,N}$ | | | | | | | | | | |
| Critical edge distance for concrete cone failure ^{c)} | $c_{cr,N}$ [mm] | $1,5 h_{ef}$ | | | | | | | | | | |



HAS-U-...

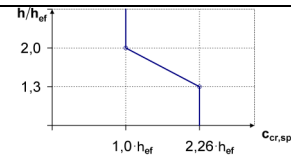


Marking:

Steel grade number and length identification letter: e.g. 8 L

Setting details for HIS-N

| Anchor size | | M8 | M10 | M12 | M16 | M20 |
|--|------------------|---|-------|-------|-------|-------|
| Nominal diameter of drill | d_0 [mm] | 14 | 18 | 22 | 28 | 32 |
| Diameter of element | d [mm] | 12,5 | 16,5 | 20,5 | 25,4 | 27,6 |
| Effective anchorage and drill hole depth | h_{ef} [mm] | 90 | 110 | 125 | 170 | 205 |
| Minimum base material thickness | h_{min} [mm] | 120 | 150 | 170 | 230 | 270 |
| Diameter of clearance hole in the fixture | d_f [mm] | 9 | 12 | 14 | 18 | 22 |
| Thread engagement length; min - max | h_s [mm] | 8-20 | 10-25 | 12-30 | 16-40 | 20-50 |
| Minimum spacing | s_{min} [mm] | 60 | 70 | 90 | 115 | 130 |
| Minimum edge distance | c_{min} [mm] | 40 | 45 | 55 | 65 | 90 |
| Critical spacing for splitting failure | $s_{cr,sp}$ [mm] | $2 c_{cr,sp}$ | | | | |
| Critical edge distance for splitting failure ^{b)} | $c_{cr,sp}$ [mm] | $1,0 \cdot h_{ef}$ for $h / h_{ef} \geq 2,0$ | | | | |
| | | $4,6 h_{ef} - 1,8 h$ for $2,0 > h / h_{ef} > 1,3$ | | | | |
| | | $2,26 h_{ef}$ for $h / h_{ef} \leq 1,3$ | | | | |
| Critical spacing for concrete cone failure | $s_{cr,N}$ [mm] | $2 c_{cr,N}$ | | | | |
| Critical edge distance for concrete cone failure ^{c)} | $c_{cr,N}$ [mm] | $1,5 h_{ef}$ | | | | |
| Max. torque moment ^{a)} | T_{max} [Nm] | 10 | 20 | 40 | 80 | 150 |

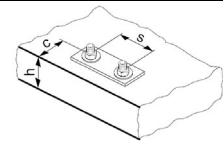


For spacing (edge distance) smaller than critical spacing (critical edge distance) the design loads have to be reduced.

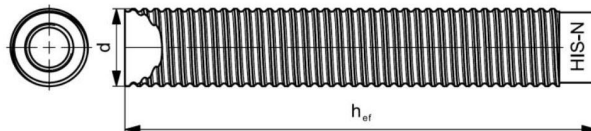
a) $h_{ef,min} \leq h_{ef} \leq h_{ef,max}$ (h_{ef} : embedment depth)

b) h : base material thickness ($h \geq h_{min}$)

c) The critical edge distance for concrete cone failure depends on the embedment depth h_{ef} and the design bond resistance. The simplified formula given in this table is on the safe side.



Internally threaded sleeve HIS-(R)N...



Marking:
Identifying mark - HILTI and embossing "HIS-N" (for zinc coated steel) embossing "HIS-RN" (for stainless steel)

Installation equipment

| Anchor size | | M8 | M10 | M12 | M16 | M20 | M24 | M27 | M30 | M36 | M39 | |
|------------------------------------|-------|--|---------------|-----|-----|---------------|-----|-----|-----|--------------------------|-----|--|
| Rotary hammer | HAS-U | TE 2 – TE 16 | | | | TE 40 – TE 80 | | | | Not available from Hilti | | |
| | HIS-N | TE 2 – TE 16 | TE 40 – TE 80 | | | - | | | | | | |
| Other tools | | compressed air gun, set of cleaning brushes, dispenser | | | | | | | | | | |
| | | roughening tools TE-YRT | | | | | | | | | - | |
| Additional Hilti recommended tools | | DD EC-1, DD 100 ... DD 160 ^{a)} | | | | | | | | | - | |

a) For anchors in diamond drilled holes load values for combined pull-out and concrete cone resistance have to be reduced



Minimum roughening time $t_{roughen}$ ($t_{roughen} [sec] = h_{ef} [mm] / 10$)

| $h_{ef} [mm]$ | $t_{roughen} [sec]$ |
|---------------|---------------------|
| 0 to 100 | 10 |
| 101 to 200 | 20 |
| 201 to 300 | 30 |
| 301 to 400 | 40 |
| 401 to 500 | 50 |
| 501 to 600 | 60 |

Parameters of cleaning and setting tools

| HAS-U | HIS-N | Drill bit diameters $d_0 [mm]$ | | | | Installation | |
|------------|------------|--------------------------------|------------------------|---------------------|---------------------------|--------------|--------------------|
| | | Hammer drill (HD) | Hollow Drill Bit (HDB) | Diamond coring | | Brush HIT-RB | Piston plug HIT-SZ |
| | | | | Diamond coring (DD) | With roughening tool (RT) | | |
| | | | | | | | |
| M8 | - | 10 | - | 10 | - | 10 | - |
| M10 | - | 12 | - | 12 | - | 12 | 12 |
| M12 | M8 | 14 | 14 | 14 | - | 14 | 14 |
| M16 | M10 | 18 | 18 | 18 | 18 | 18 | 18 |
| M20 | M12 | 22 | 22 | 22 | 22 | 22 | 22 |
| M24 | M16 | 28 | 28 | 28 | 28 | 28 | 28 |
| M27 | - | 30 | - | 30 | 30 | 30 | 30 |
| - | M20 | 32 | 32 | 32 | 32 | 32 | 32 |
| M30 | - | 35 | 35 | 35 | 35 | 35 | 35 |
| M33 | - | 37 | - | - | - | 37 | 37 |
| M36 | - | 40 | - | - | - | 40 | 40 |
| M39 | - | 42 | - | - | - | 42 | 42 |

Associated components for the use of Hilti Roughening tool TE-YRT

| Diamond coring | | Roughening tool TE-YRT | | Wear gauge RTG... |
|----------------|--------------|------------------------|--|-------------------|
| | | | | |
| $d_0 [mm]$ | | $d_0 [mm]$ | | size |
| Nominal | measured | | | |
| 18 | 17,9 to 18,2 | 18 | | 18 |
| 20 | 19,9 to 20,2 | 20 | | 20 |
| 22 | 21,9 to 22,2 | 22 | | 22 |
| 25 | 24,9 to 25,2 | 25 | | 25 |
| 28 | 27,9 to 28,2 | 28 | | 28 |
| 30 | 29,9 to 30,2 | 30 | | 30 |
| 32 | 31,9 to 32,2 | 32 | | 32 |
| 35 | 34,9 to 35,2 | 35 | | 35 |

Setting instructions

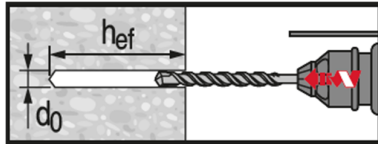
*For detailed information on installation see instruction for use given with the package of the product.



Safety regulations.

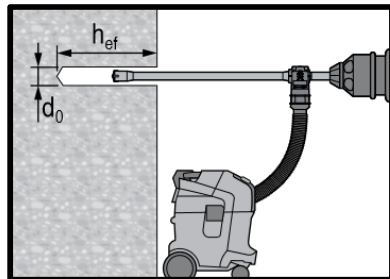
Review the Material Safety Data Sheet (MSDS) before use for proper and safe handling! Wear well-fitting protective goggles and protective gloves when working with Hilti HIT-RE 500 V3.

Drilling



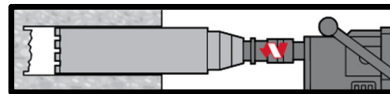
Hammer drilled hole

For dry and wet concrete and installation in flooded holes (no sea water).



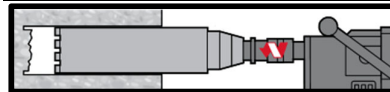
Hammer drilled hole with Hollow Drilled Bit (HDB)

No cleaning required.
For dry and wet concrete, only.



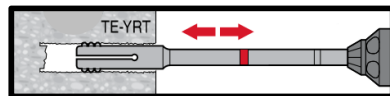
Diamond Coring

For dry and wet concrete, only.

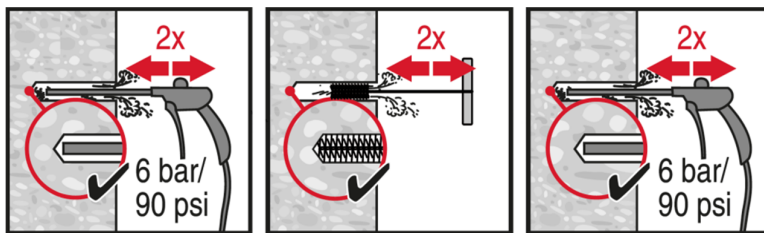


Diamond Coring + Roughening Tool

For dry and wet concrete only.
Before roughening, the borehole needs to be dry.



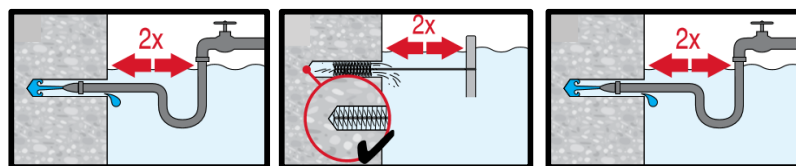
Cleaning (Inadequate hole cleaning=poor load values.)



Hammer Drilling:

Compressed air cleaning (CAC)

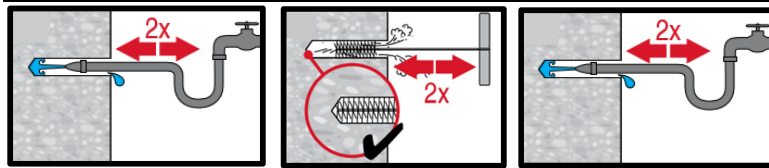
For all drill hole diameters d_0 and all drill hole depths h_0 .



Hammer drilling:

Cleaning for under water:

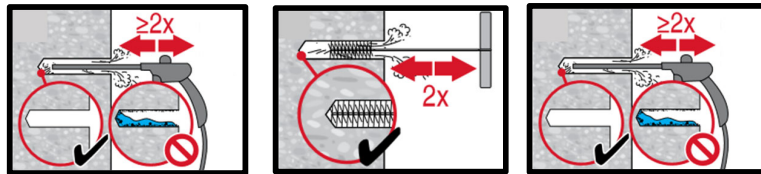
For all bore hole diameters d_0 and all bore hole depth h_0 .



Hammer drilled flooded holes and diamond cored holes:

Compressed air cleaning (CAC)

for all drill hole diameters d_0 and drill hole depths h_0 .

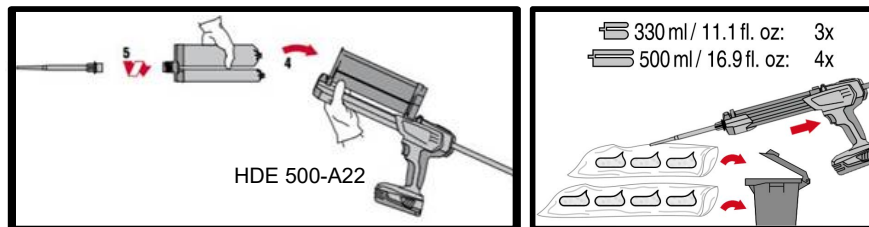


Diamond cored holes with Hilti roughening tool:

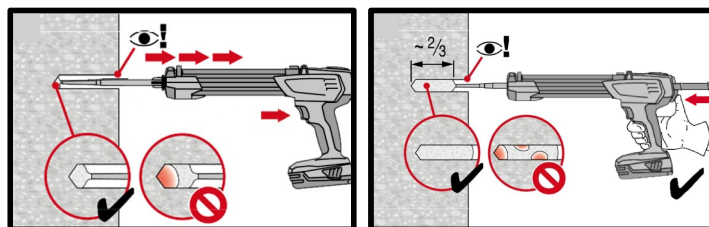
Compressed air cleaning (CAC)

for all drill hole diameters d_0 and drill hole depths h_0 .

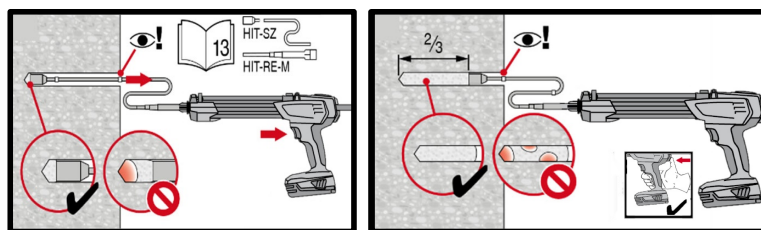
Injection preparation



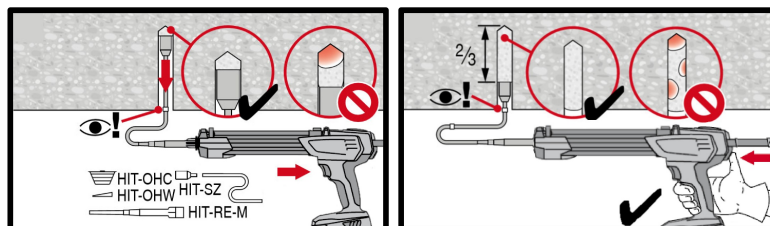
Injection system preparation.



Injection method for drill hole depth $h_{ef} \leq 250$ mm.

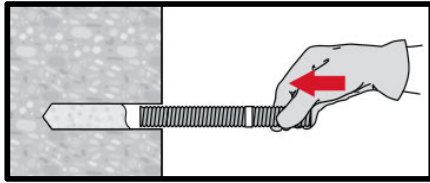


Injection method for drill hole depth $h_{ef} > 250$ mm.

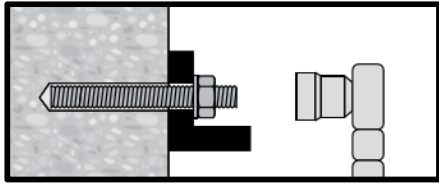


Injection method for overhead application.

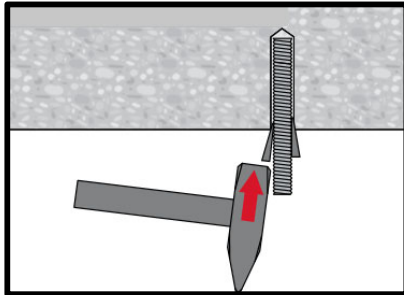
Setting the element



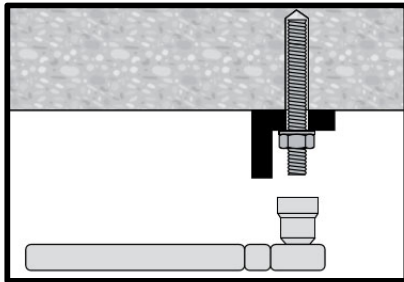
Setting element, observe working time “ t_{work} ”,



Loading the anchor after required curing time t_{cure} the anchor can be loaded. The applied installation torque shall not exceed T_{max} .



Setting element for overhead applications, observe working time “ t_{work} ”



Loading the anchor after required curing time t_{cure} the anchor can be loaded. The applied installation torque shall not exceed T_{max} .

1 February 2018
Ref: 018/AC/FL/18

TO WHOM IT MAY CONCERN

Subject : **RE: Hilti HIT-RE 500 V3 – New product replacement of HIT-RE 500-SD**

Dear Sir/Madam,

We are pleased to introduce you the new generation of epoxy mortar **Hilti HIT-RE500 V3 injection mortar system** as a product replacement of the existing HIT-RE 500-SD.

The injection system Hilti HIT-RE 500 V3 is now suitable for an even wider range of applications and conditions for added reassurance on your daily designs for both, anchor systems and post-installed rebar applications. Now you can enjoy the following benefits compared to before:

- **Higher design bond stress** in uncracked and cracked concrete in anchoring application
- **Faster curing time** of 6 hours
- **Approved in combination with Hilti Hollow Drill Bit (HDB)** to ensure a dust free environment during installation and eliminating the most load effective step for chemical anchors, borehole cleaning (SafeSet installation).
- **Approved for diamond coring:** Performance in diamond cored drilled holes on the level of hammer drilled holes when the new roughening tool TE-YRT is used (SafeSet installation).
- **Approved for category 1 (C1) application under seismic actions** to design according to EOTA TR 045 “Design of Metal Anchors For Use In Concrete Under Seismic Actions, 02/2013”
- For design under static and quasi-static action according to EOTA TR 029 and CEN/TS 1992-4 “Design of fastenings for use in concrete”
- For detailed technical details, please refer to latest Hilti Anchor Fastening Manual.

Hilti will contuously do the utmost to provide you excellent products and services. Should you need further information, please feel free to contact our engineers on 2773 4731.

Yours faithfully,



Fean Lee
Product Manager
Hilti (Hong Kong) Ltd.



Department BU Anchors - Marketing
T +423-234 3946
F +423-234 3946
E mail turkemr@hilti.com ;
D July 8, 2019

Confirmation of performance equivalence for replacing HILTI HIT-V anchor rod with HILTI HAS-U

To whom it may concern,

Hilti has launched HAS-U anchor rods to replace HIT-V; in order to better serve the customer needs and simplify the product portfolio. HAS-U anchor rod was tested according to European Assessment Document: EAD 330499 to take ETA approval and fully complies with ISO standard.

HAS-U includes the chiseling tip like HAS (-E) rods which makes it also suitable for Hilti HVU2 capsule anchor system. Both Hilti internal tests and European Technical Assessment shows that this chiseling tip has no effect on the performance when HAS-U is used together with injection system, like RE500V3, HY200 or HY170 etc. HAS-U has the same steel strength with the other anchor rods based on 5.8 and 8.8 steel grades.

HAS-U has hex head (like HAS rod) is designed to provide an easy installation to the user with HVU2 capsules. Hex head should not be included in the anchor length therefore it is strongly recommended to take only threaded part into consideration.

HAS-U shows the same performance with HIT-V for post-installed anchor applications in masonry and concrete as long as same embedment depth and same anchor plate width remains. **HAS-U's embedment depth must comply with design specification parameters.**

HAS-U (-R, -HDG)'s corrosion resistance is the same with HIT-V (-R, -HDG)'s.

The installation procedure does not need to be changed with the replacement of HAS-U. ETA document of HAS-U shows the same installation parameters with HIT-V.

Profis Engineering will be updated with HAS-U in September 2019 and you will be able to perform necessary calculations and explore all the potential applications for the new anchor rod.

In case of questions, please do not hesitate to contact one of our technical experts or sales representatives.

Yours sincerely,


Andrea Copponi

Global Product Manager
BU Anchors, Schaan


Emre Can Turkes

Global Technical Marketing Manager
BU Anchors, Schaan

Hilti Corporation
9494 Schaan
Liechtenstein

Feldkircherstrasse 100 | P.O. Box 333
T +423-234 2111 | F +423-234 3332
www.hilti.com

Rechtsform: Aktiengesellschaft | Sitz: 9494 Schaan
HR-Nr.: FL-1.011.557-0 | MWST-Nr.: 50 555

Attn. : To whom it may concern

Date : 26 September 2023
Ref. : 119/AC/DY/23

Subject : Country of Origin- Hilti HIT-RE500V3 Injectable Mortar

Dear Sir / Madam,

Enclosed please find the information of Hilti HIT-RE500V3 Injectable Mortar.

Brand Name : Hilti

Model Name : Hilti HIT-RE500V3 Injectable Mortar

Manufacturer : Hilti Corporation

Address of Manufacturer : FL-9494, Principality of Liechtenstein.

Manufacturer Contact Person : Dennis Yeung

Supplier : Hilti (Hong Kong) Ltd

Address of Supplier : 701-704, 7/F, Tower A, Manulife Financial Centre,
223 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong

Supplier Contact Person : Dennis Yeung (+852 9723 4621)

Country of Origin : Germany

Should you have further questions, please do not hesitate to contact our Technical Representatives, Customer Service Hotline at 8228-8118, or email us at hksales@hilti.com.

Yours faithfully,



Dennis Yeung
Head of Product Leadership Strategy, F&P

Attn. : To whom it may concern

Date : 18 October 2023
Ref. : 163/AN/RV/23

Subject : Country of Origin - Anchor Rod Portfolio

Dear Sir / Madam,

Enclosed please find the information of Hilti anchor rod portfolio.

Brand Name : Hilti

Manufacturer : Hilti Corporation

Address of Manufacturer : FL-9494, Principality of Liechtenstein.

Supplier : Hilti (Hong Kong) Ltd

Address of Supplier : 701-704, 7/F, Tower A, Manulife Financial Centre,
223 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong

Country of Origin : *(Attached)*

Should you have further questions, please do not hesitate to contact our Technical Representatives, Customer Service Hotline at 8228-8118, or email us at hksales@hilti.com.

Yours faithfully,



Dennis Yeung
Head of Product Leadership Strategy, F&P

| Item number | Model name | Country of Origin |
|--------------------|-----------------------|--------------------------|
| 2223936 | HAS-U 5.8 M6x75 | China |
| 2223704 | HAS-U 5.8 M6x105 | China |
| 2223852 | HAS-U 5.8 M8x80 | China |
| 2223853 | HAS-U 5.8 M8x110 | China |
| 2223854 | HAS-U 5.8 M8x150 | China |
| 2223705 | HAS-U 5.8 M10x95 | China |
| 2223706 | HAS-U 5.8 M10x115 | China |
| 2223707 | HAS-U 5.8 M10x130 | China |
| 2223709 | HAS-U 5.8 M10x170 | China |
| 2223820 | HAS-U 5.8 M10x190 | China |
| 2223821 | HAS-U 5.8 M12x110 | China |
| 2223822 | HAS-U 5.8 M12x120 | China |
| 2223823 | HAS-U 5.8 M12x160 | China |
| 2223825 | HAS-U 5.8 M12x180 | China |
| 2223826 | HAS-U 5.8 M12x200 | China |
| 2223827 | HAS-U 5.8 M12x220 | China |
| 2223867 | HAS-U 5.8 M12x260 | China |
| 2223868 | HAS-U 5.8 M12x300 | China |
| 2223828 | HAS-U 5.8 M16x150 | China |
| 2223829 | HAS-U 5.8 M16x165 | China |
| 2223830 | HAS-U 5.8 M16x190 | China |
| 2223869 | HAS-U 5.8 M16x220 | China |
| 2223832 | HAS-U 5.8 M16x260 | China |
| 2223870 | HAS-U 5.8 M16x300 | China |
| 2223871 | HAS-U 5.8 M16x350 | China |
| 2223872 | HAS-U 5.8 M16x500 | China |
| 2223873 | HAS-U 5.8 M20x180 | China |
| 2223874 | HAS-U 5.8 M20x240 | China |
| 2223876 | HAS-U 5.8 M20x260 | China |
| 2223877 | HAS-U 5.8 M20x300 | China |
| 2223878 | HAS-U 5.8 M20x350 | China |
| 2223879 | HAS-U 5.8 M20x400 | China |
| 2223880 | HAS-U 5.8 M20x480 | China |
| 2223881 | HAS-U 5.8 M24x300 | China |
| 2223882 | HAS-U 5.8 M24x450 | China |
| 2223856 | HAS-U 5.8 HDG M8x80 | China |
| 2223857 | HAS-U 5.8 HDG M8x110 | China |
| 2223858 | HAS-U 5.8 HDG M8x150 | China |
| 2223859 | HAS-U 5.8 HDG M10x95 | China |
| 2223860 | HAS-U 5.8 HDG M10x115 | China |
| 2223861 | HAS-U 5.8 HDG M10x130 | China |
| 2223862 | HAS-U 5.8 HDG M10x170 | China |
| 2223863 | HAS-U 5.8 HDG M10x190 | China |
| 2223937 | HAS-U 5.8 HDG M12x110 | China |
| 2223938 | HAS-U 5.8 HDG M12x120 | China |
| 2223939 | HAS-U 5.8 HDG M12x160 | China |
| 2223940 | HAS-U 5.8 HDG M12x180 | China |

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| 2223941 | HAS-U 5.8 HDG M12x200 | China |
| 2223942 | HAS-U 5.8 HDG M12x220 | China |
| 2223895 | HAS-U 5.8 HDG M12x260 | China |
| 2223896 | HAS-U 5.8 HDG M12x300 | China |
| 2223943 | HAS-U 5.8 HDG M16x150 | China |
| 2223944 | HAS-U 5.8 HDG M16x165 | China |
| 2223945 | HAS-U 5.8 HDG M16x190 | China |
| 2223946 | HAS-U 5.8 HDG M16x220 | China |
| 2223897 | HAS-U 5.8 HDG M16x260 | China |
| 2223898 | HAS-U 5.8 HDG M16x300 | China |
| 2223899 | HAS-U 5.8 HDG M16x350 | China |
| 2223900 | HAS-U 5.8 HDG M16x500 | China |
| 2223901 | HAS-U 5.8 HDG M20x180 | China |
| 2223902 | HAS-U 5.8 HDG M20x240 | China |
| 2223903 | HAS-U 5.8 HDG M20x260 | China |
| 2223904 | HAS-U 5.8 HDG M20x300 | China |
| 2223905 | HAS-U 5.8 HDG M20x350 | China |
| 2223906 | HAS-U 5.8 HDG M20x400 | China |
| 2223907 | HAS-U 5.8 HDG M20x480 | China |
| 2223908 | HAS-U 5.8 HDG M24x300 | China |
| 2223909 | HAS-U 5.8 HDG M24x450 | China |
| 2223855 | HAS-U 8.8 M8x150 | China |
| 2223833 | HAS-U 8.8 M10x190 | China |
| 2223834 | HAS-U 8.8 M12x220 | China |
| 2223883 | HAS-U 8.8 M12x300 | China |
| 2223835 | HAS-U 8.8 M16x190 | China |
| 2223884 | HAS-U 8.8 M16x300 | China |
| 2223885 | HAS-U 8.8 M16x380 | China |
| 2223886 | HAS-U 8.8 M20x180 | China |
| 2223887 | HAS-U 8.8 M20x260 | China |
| 2223888 | HAS-U 8.8 M20x400 | China |
| 2223889 | HAS-U 8.8 M24x300 | China |
| 2223890 | HAS-U 8.8 M27x340 | China |
| 2223891 | HAS-U 8.8 M30x380 | China |
| 2223892 | HAS-U 8.8 M33x420 | China |
| 2223893 | HAS-U 8.8 M36x460 | China |
| 2223894 | HAS-U 8.8 M39x510 | China |
| 2223947 | HAS-U 8.8 HDG M8x150 | China |
| 2223948 | HAS-U 8.8 HDG M10x190 | China |
| 2223949 | HAS-U 8.8 HDG M12x220 | China |
| 2223910 | HAS-U 8.8 HDG M12x300 | China |
| 2223703 | HAS-U 8.8 HDG M16x190 | China |
| 2223911 | HAS-U 8.8 HDG M16x300 | China |
| 2223912 | HAS-U 8.8 HDG M16x380 | China |
| 2223913 | HAS-U 8.8 HDG M20x180 | China |
| 2223914 | HAS-U 8.8 HDG M20x260 | China |
| 2223915 | HAS-U 8.8 HDG M20x400 | China |
| 2223916 | HAS-U 8.8 HDG M24x300 | China |
| 2223917 | HAS-U 8.8 HDG M27x340 | China |

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|---------|-----------------------|---------------|
| 2223918 | HAS-U 8.8 HDG M30x380 | China |
| 2223864 | HAS-U A4 M8x80 | China |
| 2223865 | HAS-U A4 M8x110 | China |
| 2223866 | HAS-U A4 M8x150 | China |
| 2223836 | HAS-U A4 M10x95 | China |
| 2223837 | HAS-U A4 M10x115 | China |
| 2223838 | HAS-U A4 M10x130 | China |
| 2223839 | HAS-U A4 M10x170 | China |
| 2223840 | HAS-U A4 M10x190 | China |
| 2223841 | HAS-U A4 M10x220 | China |
| 2223842 | HAS-U A4 M12x110 | China |
| 2223843 | HAS-U A4 M12x120 | China |
| 2223844 | HAS-U A4 M12x160 | China |
| 2223845 | HAS-U A4 M12x180 | China |
| 2223846 | HAS-U A4 M12x200 | China |
| 2223847 | HAS-U A4 M12x220 | China |
| 2223919 | HAS-U A4 M12x260 | China |
| 2223920 | HAS-U A4 M12x300 | China |
| 2223848 | HAS-U A4 M16x150 | China |
| 2223849 | HAS-U A4 M16x165 | China |
| 2223850 | HAS-U A4 M16x190 | China |
| 2223851 | HAS-U A4 M16x220 | China |
| 2223921 | HAS-U A4 M16x260 | Denmark |
| 2223922 | HAS-U A4 M16x300 | China |
| 2223923 | HAS-U A4 M16x350 | China |
| 2223924 | HAS-U A4 M16x380 | China |
| 2223925 | HAS-U A4 M20x180 | China |
| 2223926 | HAS-U A4 M20x240 | China |
| 2223927 | HAS-U A4 M20x260 | China |
| 2223928 | HAS-U A4 M20x300 | China |
| 2223929 | HAS-U A4 M20x350 | China |
| 2223930 | HAS-U A4 M20x400 | China |
| 2223931 | HAS-U A4 M20x480 | China |
| 2223932 | HAS-U A4 M24x300 | China |
| 2223933 | HAS-U A4 M24x450 | China |
| 2223934 | HAS-U A4 M27x340 | China |
| 2223935 | HAS-U A4 M30x380 | China |
| 258015 | HIS-N M8x90 | China |
| 258016 | HIS-N M10x110 | China |
| 258017 | HIS-N M12x125 | China |
| 258018 | HIS-N M16x170 | China |
| 258019 | HIS-N M20x205 | China |
| 258024 | HIS-RN M8x90 A4 | China |
| 258025 | HIS-RN M10x110 A4 | China |
| 258026 | HIS-RN M12x125 A4 | China |
| 258027 | HIS-RN M16x170 A4 | China |
| 258028 | HIS-RN M20x205 A4 | China |
| 2018364 | HIT-Z M8x80 | Liechtenstein |
| 2018365 | HIT-Z M8x100 | Liechtenstein |

| | | |
|---------|-----------------|---------------|
| 2018366 | HIT-Z M8x120 | Liechtenstein |
| 2018367 | HIT-Z M10x95 | Liechtenstein |
| 2018369 | HIT-Z M10x135 | Liechtenstein |
| 2018410 | HIT-Z M10x160 | Liechtenstein |
| 2018411 | HIT-Z M12x105 | Liechtenstein |
| 2018412 | HIT-Z M12x140 | Liechtenstein |
| 2018413 | HIT-Z M12x155 | Liechtenstein |
| 2018415 | HIT-Z M12x196 | Liechtenstein |
| 2018416 | HIT-Z M16x155 | Liechtenstein |
| 2018418 | HIT-Z M16x205 | Liechtenstein |
| 2018419 | HIT-Z M16x240 | Liechtenstein |
| 2018420 | HIT-Z M20x215 | Liechtenstein |
| 2018421 | HIT-Z M20x250 | Liechtenstein |
| 2018422 | HIT-Z-R M8x80 | Liechtenstein |
| 2018423 | HIT-Z-R M8x100 | Liechtenstein |
| 2018424 | HIT-Z-R M8x120 | Liechtenstein |
| 2018425 | HIT-Z-R M10x95 | Liechtenstein |
| 2018426 | HIT-Z-R M10x115 | Liechtenstein |
| 2018427 | HIT-Z-R M10x135 | Liechtenstein |
| 2018428 | HIT-Z-R M10x160 | Liechtenstein |
| 2018429 | HIT-Z-R M12x105 | Liechtenstein |
| 2018430 | HIT-Z-R M12x140 | Liechtenstein |
| 2018431 | HIT-Z-R M12x155 | Liechtenstein |
| 2018433 | HIT-Z-R M12x196 | Liechtenstein |
| 2018434 | HIT-Z-R M16x155 | Liechtenstein |
| 2018435 | HIT-Z-R M16x175 | Liechtenstein |
| 2018436 | HIT-Z-R M16x205 | Liechtenstein |
| 2018437 | HIT-Z-R M16x240 | Liechtenstein |
| 2018438 | HIT-Z-R M20x215 | Liechtenstein |
| 2018439 | HIT-Z-R M20x250 | Liechtenstein |

HIT-RE 500 V3

Safety information for 2-Component-products

Issue date: 13/05/2020

Revision date: 13/05/2020

Supersedes: 26/02/2019

Version: 2.3

SECTION 1: Kit identification

1.1 Product identifier

Product name

HIT-RE 500 V3



Product code

BU Anchor

1.2 Details of the supplier of the Safety information for 2-Component-products

Hilti (Hong Kong) Ltd.
701-704, 7/F, Tower A, Manulife Financial Centre
223 Wai Yip Street, Kwun Tong
Kowloon - Hong Kong
T +852 27734 700
hksales@hilti.com

SECTION 2: General information

Storage

Storage temperature : 5 - 25 °C

A SDS for each of these components is included. Please do not separate any component SDS from this cover page

This Kit should be handled in accordance with good laboratory practices and appropriate personal protective equipment should be used

SECTION 3:

Classification of the Product

Classification according to the United Nations GHS (Rev. 4, 2011)

| | |
|---------------------|------|
| Acute Tox. 5 (Oral) | H303 |
| Skin Corr. 1B | H314 |
| Skin Sens. 1 | H317 |
| Muta. 2 | H341 |
| Repr. 1B | H360 |
| STOT SE 3 | H335 |
| Aquatic Chronic 2 | H411 |

Label elements

Labelling according to the United Nations GHS (Rev. 4, 2011)

Hazard pictograms (GHS UN)



GHS05

GHS07

GHS08

GHS09

Signal word (GHS UN)

Danger

Hazardous ingredients

Epoxy resin, Amines

Hazard statements (GHS UN)

H314 - Causes severe skin burns and eye damage.
H317 - May cause an allergic skin reaction.
H335 - May cause respiratory irritation.
H341 - Suspected of causing genetic defects.
H360 - May damage fertility or the unborn child.

HIT-RE 500 V3

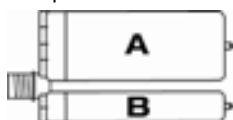
Safety information for 2-Component-products

Precautionary statements (GHS UN)

H411 - Toxic to aquatic life with long lasting effects.
 P280 - Wear eye protection, protective clothing, protective gloves.
 P262 - Do not get in eyes, on skin, or on clothing.
 P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
 P337+P313 - If eye irritation persists: Get medical advice/attention.
 P302+P352 - IF ON SKIN: Wash with plenty of water.

Additional information

2-component-foilpack, contains:
 Component A: Epoxy resin, Reactive diluent, inorganic filler
 Component B: Amine hardener, inorganic filler



| Name | General description | Quantity | Unit | Classification according to the United Nations GHS |
|------------------|---------------------|----------|------|---|
| HIT-RE 500 V3, B | | 1 | pcs | Acute Tox. 5 (Oral), H303 Skin Corr. 1B, H314 Skin Sens. 1, H317 STOT SE 3, H335 Aquatic Acute 3, H402 Aquatic Chronic 3, H412 |
| HIT-RE 500 V3, A | | 1 | pcs | Skin Corr. 1C, H314 Skin Sens. 1, H317 Muta. 2, H341 Repr. 1B, H360 Aquatic Acute 2, H401 Aquatic Chronic 2, H411 |

SECTION 4: General advice

General advice For professional users only

SECTION 5: Safe handling advice

| | |
|-------------------------------|---|
| General measures | Spilled material may present a slipping hazard |
| Environmental precautions | Prevent entry to sewers and public waters Notify authorities if liquid enters sewers or public waters Avoid release to the environment Full or only partially emptied cartridges must be disposed of as special waste in accordance with official regulations. After curing, the product can be disposed of with household waste. |
| Storage conditions | Protect from sunlight. Store in a well-ventilated place. |
| Technical measures | Comply with applicable regulations |
| Precautions for safe handling | Wear personal protective equipment Avoid contact with skin and eyes Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work Avoid contact during pregnancy/while nursing |
| Methods for cleaning up | This material and its container must be disposed of in a safe way, and as per local legislation Mechanically recover the product On land, sweep or shovel into suitable containers Store away from other materials. |
| For containment | Collect spillage. |
| Incompatible materials | Sources of ignition Direct sunlight |
| Incompatible products | Strong bases |

HIT-RE 500 V3

Safety information for 2-Component-products

Strong acids

SECTION 6: First aid measures

| | |
|---------------------------------------|--|
| First-aid measures after eye contact | Get immediate medical advice/attention. Immediately rinse with water for a prolonged period while holding the eyelids wide open Remove contact lenses, if present and easy to do. Continue rinsing. Consult an eye specialist |
| First-aid measures after ingestion | Do not induce vomiting Rinse mouth Immediately call a POISON CENTER/doctor. |
| First-aid measures after inhalation | Remove person to fresh air and keep comfortable for breathing. |
| First-aid measures after skin contact | Wash with plenty of water/... Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get immediate medical advice/attention. |
| First-aid measures general | Never give anything by mouth to an unconscious person If you feel unwell, seek medical advice (show the label where possible) |
| Symptoms/effects | Causes severe skin burns and eye damage. |
| Symptoms/effects after eye contact | Causes serious eye damage. |
| Symptoms/effects after inhalation | May cause an allergic skin reaction. |

SECTION 7: Fire fighting measures

| | |
|--|--|
| Firefighting instructions | Use water spray or fog for cooling exposed containers Exercise caution when fighting any chemical fire Prevent fire fighting water from entering the environment |
| Protection during firefighting | Self-contained breathing apparatus Do not enter fire area without proper protective equipment, including respiratory protection |
| Hazardous decomposition products in case of fire | Thermal decomposition generates : Carbon dioxide Carbon monoxide |

SECTION 8: Other information

No data available

HIT-RE 500 V3, B

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

Issue date: 13/05/2020

Version: 1.6

Revision date: 13/05/2020

Supersedes: 25/02/2019

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

| | |
|--------------|------------------|
| Product form | Mixture |
| Product name | HIT-RE 500 V3, B |
| UN-No. (ADR) | 3259 |
| Product code | BU Anchor |

1.2. Relevant identified uses of the substance or mixture and uses advised against

| | |
|------------------------------|---|
| Use of the substance/mixture | Composite mortar component for fasteners in the construction industry |
|------------------------------|---|

1.3. Details of the supplier of the safety data sheet

Supplier

Hilti (Hong Kong) Ltd.
701-704, 7/F, Tower A, Manulife Financial Centre
223 Wai Yip Street, Kwun Tong
Kowloon - Hong Kong
T +852 27734 700
hksales@hilti.com

Department issuing data specification sheet

Hilti Entwicklungsgesellschaft mbH
Hiltistraße 6
86916 Kaufering - Deutschland
T +49 8191 906876
anchor.hse@hilti.com

1.4. Emergency telephone number

| | |
|------------------|---|
| Emergency number | Schweizerisches Toxikologisches Informationszentrum – 24h Service +41 44 251 51 51 (international) +852 27734 700 |
|------------------|---|

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to the United Nations GHS (Rev. 4, 2011)

| | |
|---------------------|------|
| Acute Tox. 5 (Oral) | H303 |
| Skin Corr. 1B | H314 |
| Skin Sens. 1 | H317 |
| STOT SE 3 | H335 |
| Aquatic Acute 3 | H402 |
| Aquatic Chronic 3 | H412 |

Full text of H statements : see section 16

2.2. Label elements

Labelling according to the United Nations GHS (Rev. 4, 2011)

Hazard pictograms (GHS UN)



GHS05

GHS07

Signal word (GHS UN)

Danger

Hazardous ingredients

2-methyl-1,5-pentanediamine; Phenol, styrenated; m-Xylylenediamine; 3-Aminopropyltriethoxysilan; 2,4,6-tris(dimethylaminomethyl)phenol

Hazard statements (GHS UN)

H314 - Causes severe skin burns and eye damage.
H317 - May cause an allergic skin reaction.
H335 - May cause respiratory irritation.
H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements (GHS UN)

P262 - Do not get in eyes, on skin, or on clothing.
P280 - Wear eye protection, protective clothing, protective gloves.

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P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P333+P313 - If skin irritation or rash occurs: Get medical advice, medical attention.
 P337+P313 - If eye irritation persists: Get medical advice, medical attention.
 P302+P352 - IF ON SKIN: Wash with plenty of water.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

| Name | Product identifier | % | Classification according to the United Nations GHS |
|---------------------------------------|----------------------|---------|---|
| 2-methyl-1,5-pentanediamine | (CAS-No.) 15520-10-2 | 25 - 35 | Flammable liquids, Category 4, H227 Acute toxicity (oral), Category 4, H302 Acute toxicity (dermal), Category 4, H312 Acute toxicity (inhalation:dust,mist) Category 4, H332 Skin corrosion/irritation, Category 1A, H314 Serious eye damage/eye irritation, Category 1, H318 Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation, H335 |
| Phenol, styrenated | (CAS-No.) 61788-44-1 | 5 - 10 | Skin corrosion/irritation, Category 2, H315 Skin sensitisation, Category 1, H317 Hazardous to the aquatic environment — Acute Hazard, Category 2, H401 Hazardous to the aquatic environment — Chronic Hazard, Category 2, H411 |
| m-Xylylenediamine | (CAS-No.) 1477-55-0 | 5 - <8 | Acute toxicity (oral), Category 4, H302 Acute toxicity (inhalation:dust,mist) Category 4, H332 Skin corrosion/irritation, Category 1B, H314 Serious eye damage/eye irritation, Category 1, H318 Skin sensitisation, category 1B, H317 Hazardous to the aquatic environment — Acute Hazard, Category 3, H402 Hazardous to the aquatic environment — Chronic Hazard, Category 3, H412 |
| 2,4,6-tris(dimethylaminomethyl)phenol | (CAS-No.) 90-72-2 | 1 - 2,5 | Acute toxicity (oral), Category 4, H302 Skin corrosion/irritation, Category 2, H315 Serious eye damage/eye irritation, Category 2A, H319 |
| 3-Aminopropyltriethoxysilan | (CAS-No.) 919-30-2 | 1 - 2,5 | Acute toxicity (oral), Category 4, H302 Skin corrosion/irritation, Category 1B, H314 |

Full text of H-statements: see section 16

HIT-RE 500 V3, B

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

SECTION 4: First aid measures

4.1. Description of first aid measures

| | |
|---------------------------------------|---|
| First-aid measures general | Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). |
| First-aid measures after inhalation | Remove person to fresh air and keep comfortable for breathing. |
| First-aid measures after skin contact | Wash with plenty of water/.... Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get immediate medical advice/attention. |
| First-aid measures after eye contact | Get immediate medical advice/attention. Immediately rinse with water for a prolonged period while holding the eyelids wide open. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an eye specialist. |
| First-aid measures after ingestion | Do not induce vomiting. Rinse mouth. Immediately call a POISON CENTER/doctor. |

4.2. Most important symptoms and effects, both acute and delayed

| | |
|---|--|
| Symptoms/effects | Causes severe skin burns and eye damage. |
| Symptoms/effects after inhalation | May cause an allergic skin reaction. |
| Symptoms/effects after eye contact | Causes serious eye damage. |
| Potential adverse human health effects and symptoms | No additional information available. |

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

| | |
|--------------------------------|--|
| Suitable extinguishing media | Foam. Dry powder. Carbon dioxide. Water spray. Sand. |
| Unsuitable extinguishing media | Do not use a heavy water stream. |

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

| | |
|--------------------------------|---|
| Firefighting instructions | Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment. |
| Protection during firefighting | Self-contained breathing apparatus. Do not enter fire area without proper protective equipment, including respiratory protection. |

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

| | |
|------------------|---|
| General measures | Spilled material may present a slipping hazard. |
|------------------|---|

6.1.1. For non-emergency personnel

| | |
|----------------------|---------------------------------|
| Emergency procedures | Evacuate unnecessary personnel. |
|----------------------|---------------------------------|

6.1.2. For emergency responders

| | |
|----------------------|---|
| Protective equipment | Use personal protective equipment as required. Equip cleanup crew with proper protection. |
| Emergency procedures | Ventilate area. |

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Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment. Full or only partially emptied cartridges must be disposed of as special waste in accordance with official regulations. After curing, the product can be disposed of with household waste.

6.3. Methods and material for containment and cleaning up

| | |
|-------------------------|--|
| For containment | Collect spillage. |
| Methods for cleaning up | This material and its container must be disposed of in a safe way, and as per local legislation. Mechanically recover the product. On land, sweep or shovel into suitable containers. Store away from other materials. |
| Other information | Dispose of materials or solid residues at an authorized site. |

SECTION 7: Handling and storage

7.1. Precautions for safe handling

| | |
|-------------------------------|---|
| Precautions for safe handling | Wear personal protective equipment. Avoid contact with skin and eyes. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid contact during pregnancy/while nursing. |
| Hygiene measures | Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. |

7.2. Conditions for safe storage, including any incompatibilities

| | |
|---------------------------|--|
| Technical measures | Comply with applicable regulations. |
| Storage conditions | Protect from sunlight. Store in a well-ventilated place. |
| Incompatible products | Strong bases. Strong acids. |
| Incompatible materials | Sources of ignition. Direct sunlight. |
| Storage temperature | 5 - 25 °C |
| Heat and ignition sources | Keep away from heat and direct sunlight. |

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| | |
|------------------------|--|
| Additional information | The product has a pasty consistency. Exposure limit values for respirable dusts are not relevant for this product. |
|------------------------|--|

8.2. Appropriate engineering controls

| | |
|----------------------------------|--|
| Appropriate engineering controls | Ensure good ventilation of the work station. |
| Environmental exposure controls | No specific measures are required provided the product is handled in accordance with the general rules of occupational hygiene and safety. |
| Consumer exposure controls | Avoid contact during pregnancy/while nursing. |
| Other information | Do not eat, drink or smoke during use. |

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Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

8.3. Individual protection measures, such as personal protective equipment (PPE)

Materials for protective clothing Long sleeved protective clothing

Hand protection Wear protective gloves. The permeation time is not the maximum wearing time! Generally speaking, it must be reduced. Contact with either mixtures of substances or different substances may shorten the protective function's effective duration.

| Type | Material | Permeation | Thickness (mm) | Penetration | Standard |
|-------------------|----------------------|-------------------|----------------|-------------|----------|
| Disposable gloves | Nitrile rubber (NBR) | 6 (> 480 minutes) | > 0,4 | | EN 374 |

Eye protection Wear security glasses which protect from splashes

| Type | Use | Characteristics | Standard |
|----------------|---------|-----------------|----------------|
| Safety glasses | Droplet | clear | EN 166, EN 170 |

Skin and body protection Wear suitable protective clothing



8.4. Exposure limit values for the other components

No additional information available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|--|------------------------|
| Physical state | Solid |
| Appearance | Thixotropic paste. |
| Colour | red. |
| Odour | Amine-like. |
| Odour threshold | No data available |
| pH | 11.5 |
| Relative evaporation rate (butylacetate=1) | No data available |
| Melting point | No data available |
| Freezing point | No data available |
| Boiling point | No data available |
| Flash point | No data available |
| Auto-ignition temperature | No data available |
| Decomposition temperature | No data available |
| Flammability (solid, gas) | Non flammable. |
| Vapour pressure | No data available |
| Relative vapour density at 20 °C | No data available |
| Relative density | No data available |
| Density | 1.31 g/cm ³ |
| Solubility | insoluble in water. |

HIT-RE 500 V3, B

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

| | |
|----------------------|----------------------|
| Log Pow | No data available |
| Viscosity, kinematic | No data available |
| Viscosity, dynamic | 50 - 70 Pa·s HN-0333 |
| Explosive properties | No data available |
| Oxidising properties | No data available |
| Explosive limits | No data available |

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Corrosive vapours.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No additional information available.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Thermal decomposition generates : fume. Carbon monoxide. Carbon dioxide. Corrosive vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

| | |
|-----------------------------|------------------------------|
| Acute toxicity (oral) | May be harmful if swallowed. |
| Acute toxicity (dermal) | Not classified |
| Acute toxicity (inhalation) | Not classified |

| 2-methyl-1,5-pentanediamine (15520-10-2) | |
|---|------------------|
| LD50 oral rat | 1690 mg/kg (Rat) |
| LD50 dermal rat | 1870 mg/kg |
| LC50 inhalation rat (mg/l) | 4.9 mg/l |
| Phenol, styrenated (61788-44-1) | |
| LD50 oral rat | > 2500 mg/kg |
| LD50 dermal rat | > 2000 mg/kg |
| LC50 inhalation rat (mg/l) | 158.31 mg/l/4h |
| m-Xylylenediamine (1477-55-0) | |
| LD50 oral rat | 1090 mg/kg |
| LD50 oral | 660 mg/kg |
| LD50 dermal rat | > 3100 mg/kg |
| LD50 dermal | > 3100 mg/kg |
| LC50 inhalation rat (Dust/Mist - mg/l/4h) | 1.34 mg/l/4h |

HIT-RE 500 V3, B

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

| | |
|--|---|
| 3-Aminopropyltriethoxysilan (919-30-2) | |
| LD50 oral rat | 1.57 ml/kg |
| 2,4,6-tris(dimethylaminomethyl)phenol (90-72-2) | |
| LD50 oral rat | 2169 mg/kg (Rat; Equivalent or similar to OECD 401; Literature study; 2169 mg/kg bodyweight; Rat; Experimental value) |
| LD50 dermal rat | > 2000 mg/kg (Rat; Literature study; Other; >1 ml/kg; Rat; Experimental value) |
| Skin corrosion/irritation | Causes severe skin burns and eye damage. pH: 11.5 |
| Serious eye damage/irritation | Serious eye damage, category 1, implicit pH: 11.5 |
| Respiratory or skin sensitisation | May cause an allergic skin reaction. |
| Germ cell mutagenicity | Not classified |
| Carcinogenicity | Not classified |
| Reproductive toxicity | Not classified |
| STOT-single exposure | May cause respiratory irritation. |
| STOT-repeated exposure | Not classified |
| Aspiration hazard | Not classified |
| Potential adverse human health effects and symptoms | No additional information available. |

SECTION 12: Ecological information

12.1. Toxicity

| | |
|--|--|
| Ecology - water | Harmful to aquatic life with long lasting effects. |
| Hazardous to the aquatic environment, short-term (acute) | Harmful to aquatic life. |
| Classification procedure (Hazardous to the aquatic environment, short-term (acute)) | Calculation method |
| Hazardous to the aquatic environment, long-term (chronic) | Harmful to aquatic life with long lasting effects. |
| Classification procedure (Hazardous to the aquatic environment, long-term (chronic)) | Calculation method |

| | |
|---|-----------------------|
| 2-methyl-1,5-pentanediamine (15520-10-2) | |
| LC50 fish 1 | 130 mg/l (LC50; 48 h) |
| LOEC (acute) | 1800 mg/l |
| NOEC (acute) | 1000 mg/l |

| | |
|--|--------------------------|
| Phenol, styrenated (61788-44-1) | |
| LC50 fish 1 | 5.6 mg/l |
| LC50 other aquatic organisms 1 | 9.7 mg/l |
| EC50 Daphnia 1 | 1.44 mg/l |
| NOEC (acute) | 3.2 mg/l |
| Threshold limit algae 1 | 0.326 mg/l (72 h; Algae) |
| Threshold limit algae 2 | 0.14 mg/l (72 h; Algae) |

| | |
|--------------------------------------|------------|
| m-Xylylenediamine (1477-55-0) | |
| LC50 fish 1 | 75 mg/l |
| LC50 other aquatic organisms 1 | 20.3 ppb |
| EC50 Daphnia 1 | 15 mg/l |
| LOEC (chronic) | 15 mg/l |
| NOEC (acute) | 10.5 mg/kg |
| NOEC (chronic) | 4.7 mg/l |
| NOEC chronic crustacea | 4.7 mg/l |

| | |
|--|--|
| 2,4,6-tris(dimethylaminomethyl)phenol (90-72-2) | |
| LC50 fish 1 | > 100 mg/l (96 h; Pisces; Nominal concentration) |
| EC50 Daphnia 1 | 10 - 100 mg/l (Invertebrata; Estimated value) |
| EC50 other aquatic organisms 1 | 84 mg/l (72 h; Desmodismus subspicatus; growth rate; ECHA) |

HIT-RE 500 V3, B

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

| | |
|-------------------------|--|
| LC50 fish 2 | 70.9 mg/l (96 h; Pisces) |
| ErC50 (algae) | 84 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, GLP) |
| NOEC (chronic) | 2 mg/l (28 d; activated sludge, domestic; respiration rate; ECHA) |
| Threshold limit algae 1 | 10 - 100, Algae |
| Threshold limit algae 2 | 84 mg/l (72 h; Scenedesmus subspicatus; Growth rate) |

12.2. Persistence and degradability

| | |
|--|---|
| HIT-RE 500 V3, B | |
| Persistence and degradability | May cause long-term adverse effects in the environment. |
| Phenol, styrenated (61788-44-1) | |
| Biochemical oxygen demand (BOD) | 0.000231 g O ₂ /g substance |
| Chemical oxygen demand (COD) | 0.004827 g O ₂ /g substance |

12.3. Bioaccumulative potential

| | |
|--|---|
| HIT-RE 500 V3, B | |
| Bioaccumulative potential | Not established. |
| 2-methyl-1,5-pentanediamine (15520-10-2) | |
| Log Pow | 0.27 (Estimated value) |
| Bioaccumulative potential | Low bioaccumulation potential (Log Kow < 4). |
| Phenol, styrenated (61788-44-1) | |
| BCF fish 2 | 3246 mg/l |
| Log Pow | 6.24 - 7.77 (Experimental value; OECD 123: Partition Coefficient (1-Octanol/Water): Slow-Stirring Method) |
| Bioaccumulative potential | Bioaccumulative potential. |
| 2,4,6-tris(dimethylaminomethyl)phenol (90-72-2) | |
| Log Pow | 0.77 (Literature; 0.219; Experimental value; Equivalent or similar to OECD 107; 21.5 °C) |
| Bioaccumulative potential | Low bioaccumulation potential (Log Kow < 4). |

12.4. Mobility in soil

| | |
|--|--|
| 2-methyl-1,5-pentanediamine (15520-10-2) | |
| Log Pow | See section 12.1 on ecotoxicology |
| Phenol, styrenated (61788-44-1) | |
| Log Pow | See section 12.1 on ecotoxicology |
| Ecology - soil | No (test) data on mobility of the substance available. |
| 2,4,6-tris(dimethylaminomethyl)phenol (90-72-2) | |
| Log Pow | See section 12.1 on ecotoxicology |
| Log Koc | See section 12.1 on ecotoxicology |
| Ecology - soil | Highly mobile in soil. |

12.5. Other adverse effects

| | |
|-----------------------|-------------------------------------|
| Ozone | Not classified |
| Other adverse effects | No additional information available |
| Other information | Avoid release to the environment. |

SECTION 13: Disposal considerations

13.1. Waste treatment methods

| | |
|--|--|
| Regional legislation (waste) | Disposal must be done according to official regulations. |
| Product/Packaging disposal recommendations | After curing, the product can be disposed of with household waste. . Full or only partially emptied cartridges must be disposed of as special waste in accordance with official regulations. Packaging contaminated by the product : Dispose in a safe manner in accordance with local/national regulations. |
| Ecology - waste materials | Avoid release to the environment. |

HIT-RE 500 V3, B

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

| ADR | IMDG | IATA | RID |
|---|--|--|--|
| 14.1. UN number | | | |
| 3259 | 3259 | 3259 | 3259 |
| 14.2. UN proper shipping name | | | |
| AMINES, SOLID, CORROSIVE, N.O.S. (2-methyl-1,5-pentanediamine, m-Xylylenediamine) | AMINES, SOLID, CORROSIVE, N.O.S. (2-methyl-1,5-pentanediamine, m-Xylylenediamine) | Amines, solid, corrosive, n.o.s. (2-methyl-1,5-pentanediamine, m-Xylylenediamine) | AMINES, SOLID, CORROSIVE, N.O.S. (2-methyl-1,5-pentanediamine, m-Xylylenediamine) |
| Transport document description | | | |
| UN 3259 AMINES, SOLID, CORROSIVE, N.O.S. (2-methyl-1,5-pentanediamine, m-Xylylenediamine), 8, II, (E) | UN 3259 AMINES, SOLID, CORROSIVE, N.O.S. (2-methyl-1,5-pentanediamine, m-Xylylenediamine), 8, II | UN 3259 Amines, solid, corrosive, n.o.s. (2-methyl-1,5-pentanediamine, m-Xylylenediamine), 8, II | UN 3259 AMINES, SOLID, CORROSIVE, N.O.S. (2-methyl-1,5-pentanediamine, m-Xylylenediamine), 8, II |
| 14.3. Transport hazard class(es) | | | |
| 8 | 8 | 8 | 8 |
| | | | |
| 14.4. Packing group | | | |
| II | II | II | II |
| 14.5. Environmental hazards | | | |
| Dangerous for the environment : No | Dangerous for the environment : No Marine pollutant : No | Dangerous for the environment : No | Dangerous for the environment : No |
| No supplementary information available | | | |

14.6. Special precautions for user

- Overland transport

| | |
|--------------------------------|-------------|
| Classification code (ADR) | C8 |
| Special provisions (ADR) | 274 |
| Limited quantities (ADR) | 1kg |
| Packing instructions (ADR) | P002, IBC08 |
| Mixed packing provisions (ADR) | MP10 |
| Transport category (ADR) | 2 |
| Orange plates | |

Tunnel restriction code (ADR) E

- Transport by sea

| | |
|-----------------------------|------|
| Special provisions (IMDG) | 274 |
| Limited quantities (IMDG) | 1 kg |
| Packing instructions (IMDG) | P002 |

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| | |
|--------------------------------|------------------------|
| EmS-No. (Fire) | F-A |
| EmS-No. (Spillage) | S-B |
| Stowage category (IMDG) | A |
| Stowage and segregation (IMDG) | Separated from' acids. |
| MFAG-No | 154 |

- Air transport

| | |
|---------------------------------|------|
| PCA packing instructions (IATA) | 859 |
| PCA max net quantity (IATA) | 15kg |
| CAO packing instructions (IATA) | 863 |
| Special provisions (IATA) | A3 |

- Rail transport

| | |
|----------------------------|-------------|
| Special provisions (RID) | 274 |
| Limited quantities (RID) | 1kg |
| Packing instructions (RID) | P002, IBC08 |
| Carriage prohibited (RID) | No |

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

No additional information available

SECTION 16: Other information

| | |
|-----------------|------------|
| SDS Major/Minor | None |
| Issue date | 13/05/2020 |
| Revision date | 13/05/2020 |
| Supersedes | 25/02/2019 |

Indication of changes:

| Section | Changed item | Change | Comments |
|---------|-------------------------|----------|----------|
| 2.1 | Classification (GHS UN) | Modified | |

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Abbreviations and acronyms

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
 ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road
 ATE - Acute Toxicity Estimate
 BCF - Bioconcentration factor
 CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
 DMEL - Derived Minimal Effect level
 DNEL - Derived-No Effect Level
 IATA - International Air Transport Association
 EC50 - Median effective concentration
 IMDG - International Maritime Dangerous Goods
 LC50 - Median lethal concentration
 LD50 - Median lethal dose
 LOAEL - Lowest Observed Adverse Effect Level
 NOAEC - No-Observed Adverse Effect Concentration
 NOAEL - No-Observed Adverse Effect Level
 NOEC - No-Observed Effect Concentration
 PBT - Persistent Bioaccumulative Toxic
 PNEC - Predicted No-Effect Concentration
 REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
 RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
 SDS - Safety Data Sheet
 vPvB - Very Persistent and Very Bioaccumulative
 None.

Other information

Full text of H-statements:

| | |
|------|--|
| H227 | Combustible liquid |
| H302 | Harmful if swallowed. |
| H303 | May be harmful if swallowed |
| H312 | Harmful in contact with skin. |
| H314 | Causes severe skin burns and eye damage. |
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H318 | Causes serious eye damage. |
| H319 | Causes serious eye irritation. |
| H332 | Harmful if inhaled. |
| H335 | May cause respiratory irritation. |
| H401 | Toxic to aquatic life |
| H402 | Harmful to aquatic life |
| H411 | Toxic to aquatic life with long lasting effects. |
| H412 | Harmful to aquatic life with long lasting effects. |

SDS_UN_Hilti

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

HIT-RE 500 V3, A

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

Issue date: 13/05/2020

Version: 2.3

Revision date: 13/05/2020

Supersedes: 25/02/2019

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

| | |
|--------------|------------------|
| Product form | Mixture |
| Product name | HIT-RE 500 V3, A |
| UN-No. (ADR) | 1759 |
| Product code | BU Anchor |

1.2. Relevant identified uses of the substance or mixture and uses advised against

| | |
|------------------------------|---|
| Use of the substance/mixture | Composite mortar component for fasteners in the construction industry |
|------------------------------|---|

1.3. Details of the supplier of the safety data sheet

Supplier

Hilti (Hong Kong) Ltd.
701-704, 7/F, Tower A, Manulife Financial Centre
223 Wai Yip Street, Kwun Tong
Kowloon - Hong Kong
T +852 27734 700
hksales@hilti.com

Department issuing data specification sheet

Hilti Entwicklungsgesellschaft mbH
Hiltistraße 6
86916 Kaufering - Deutschland
T +49 8191 906876
anchor.hse@hilti.com

1.4. Emergency telephone number

| | |
|------------------|---|
| Emergency number | Schweizerisches Toxikologisches Informationszentrum – 24h Service +41 44 251 51 51 (international) +852 27734 700 |
|------------------|---|

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to the United Nations GHS (Rev. 4, 2011)

| | |
|-------------------|------|
| Skin Corr. 1C | H314 |
| Skin Sens. 1 | H317 |
| Muta. 2 | H341 |
| Repr. 1B | H360 |
| Aquatic Acute 2 | H401 |
| Aquatic Chronic 2 | H411 |

Full text of H statements : see section 16

2.2. Label elements

Labelling according to the United Nations GHS (Rev. 4, 2011)

Hazard pictograms (GHS UN)



GHS05

GHS07

GHS08

GHS09

Signal word (GHS UN)

Danger

Hazardous ingredients

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol ; butanedioldiglycidyl ether ; 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane; trimethylolpropane triglycidylether

Hazard statements (GHS UN)

H314 - Causes severe skin burns and eye damage.
H317 - May cause an allergic skin reaction.
H341 - Suspected of causing genetic defects.
H360 - May damage fertility or the unborn child.
H411 - Toxic to aquatic life with long lasting effects.

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according to the United Nations GHS (Rev. 4, 2011)

Precautionary statements (GHS UN)

P262 - Do not get in eyes, on skin, or on clothing.
 P280 - Wear eye protection, protective clothing, protective gloves.
 P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P333+P313 - If skin irritation or rash occurs: Get medical advice, medical attention.
 P337+P313 - If eye irritation persists: Get medical advice, medical attention.
 P302+P352 - IF ON SKIN: Wash with plenty of water.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

| Name | Product identifier | % | Classification according to the United Nations GHS |
|--|----------------------|---------|---|
| 2,2'-((1-methylethylidene)bis(4,1-phenyleneoxymethylene))bisoxirane | (CAS-No.) 1675-54-3 | 25 - 40 | Flammable liquids Not classified Skin corrosion/irritation, Category 2, H315 Serious eye damage/eye irritation, Category 2A, H319 Skin sensitisation, Category 1, H317 Hazardous to the aquatic environment — Acute Hazard, Category 2, H401 Hazardous to the aquatic environment — Chronic Hazard, Category 2, H411 |
| Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol | (CAS-No.) 9003-36-5 | 10-20 | Skin corrosion/irritation, Category 2, H315 Serious eye damage/eye irritation, Category 2A, H319 Skin sensitisation, Category 1, H317 Hazardous to the aquatic environment — Chronic Hazard, Category 2, H411 |
| butanedioldiglycidyl ether | (CAS-No.) 2425-79-8 | 5 - 10 | Acute toxicity (oral), Category 4, H302 Acute toxicity (dermal), Category 4, H312 Acute toxicity (inhal.), Category 4, H332 Skin corrosion/irritation, Category 2, H315 Serious eye damage/eye irritation, Category 1, H318 Skin sensitisation, Category 1, H317 Hazardous to the aquatic environment — Acute Hazard, Category 3, H402 Hazardous to the aquatic environment — Chronic Hazard, Category 3, H412 |
| trimethylolpropane triglycidylether | (CAS-No.) 30499-70-8 | 5 - 10 | Skin corrosion/irritation, Category 1C, H314 Serious eye damage/eye irritation, Category 1, H318 Skin sensitisation, category 1B, H317 Germ cell mutagenicity, Category 2, H341 Reproductive toxicity, Category 1B, H360 Hazardous to the aquatic environment — Chronic Hazard, Category 2, H411 |
| [3-(2,3-epoxypropoxy)propyl]trimethoxysilane | (CAS-No.) 2530-83-8 | 2.5 - 5 | Acute toxicity (dermal), Category 5, H313 Serious eye damage/eye irritation, Category 1, H318 Hazardous to the aquatic environment — Acute Hazard, Category 3, H402 |

Full text of H-statements: see section 16

HIT-RE 500 V3, A

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

SECTION 4: First aid measures

4.1. Description of first aid measures

| | |
|---------------------------------------|---|
| First-aid measures general | Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). |
| First-aid measures after inhalation | Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest. |
| First-aid measures after skin contact | Gently wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Get immediate medical advice/attention. |
| First-aid measures after eye contact | Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persists. |
| First-aid measures after ingestion | Rinse mouth. Get medical advice/attention. Do not induce vomiting. Obtain emergency medical attention. |

4.2. Most important symptoms and effects, both acute and delayed

| | |
|---|--------------------------------------|
| Symptoms/effects after inhalation | May cause an allergic skin reaction. |
| Symptoms/effects after skin contact | Causes skin irritation. |
| Symptoms/effects after eye contact | Causes serious eye irritation. |
| Potential adverse human health effects and symptoms | No additional information available. |

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

| | |
|--------------------------------|--|
| Suitable extinguishing media | Water spray. Carbon dioxide. Dry powder. Foam. Sand. |
| Unsuitable extinguishing media | Do not use a heavy water stream. |

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

| | |
|--------------------------------|---|
| Firefighting instructions | Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment. |
| Protection during firefighting | Self-contained breathing apparatus. Do not enter fire area without proper protective equipment, including respiratory protection. |

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

| | |
|------------------|---|
| General measures | Spilled material may present a slipping hazard. |
|------------------|---|

6.1.1. For non-emergency personnel

| | |
|----------------------|---------------------------------|
| Emergency procedures | Evacuate unnecessary personnel. |
|----------------------|---------------------------------|

6.1.2. For emergency responders

| | |
|----------------------|---|
| Protective equipment | Use personal protective equipment as required. Equip cleanup crew with proper protection. |
| Emergency procedures | Ventilate area. |

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according to the United Nations GHS (Rev. 4, 2011)

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment. Full or only partially emptied cartridges must be disposed of as special waste in accordance with official regulations. After curing, the product can be disposed of with household waste.

6.3. Methods and material for containment and cleaning up

| | |
|-------------------------|--|
| For containment | Collect spillage. |
| Methods for cleaning up | This material and its container must be disposed of in a safe way, and as per local legislation. Mechanically recover the product. On land, sweep or shovel into suitable containers. Store away from other materials. |
| Other information | Dispose of materials or solid residues at an authorized site. |

SECTION 7: Handling and storage

7.1. Precautions for safe handling

| | |
|-------------------------------|---|
| Precautions for safe handling | Wear personal protective equipment. Avoid contact with skin and eyes. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. |
| Hygiene measures | Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. |

7.2. Conditions for safe storage, including any incompatibilities

| | |
|---------------------------|--|
| Storage conditions | Protect from sunlight. |
| Incompatible products | Strong bases. Strong acids. |
| Incompatible materials | Sources of ignition. Direct sunlight. |
| Storage temperature | 5 - 25 °C |
| Heat and ignition sources | Keep away from heat and direct sunlight. |

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| | |
|------------------------|--|
| Additional information | The product has a pasty consistency. Exposure limit values for respirable dusts are not relevant for this product. |
|------------------------|--|

8.2. Appropriate engineering controls

| | |
|----------------------------------|--|
| Appropriate engineering controls | No specific measures identified. |
| Environmental exposure controls | No specific measures are required provided the product is handled in accordance with the general rules of occupational hygiene and safety. |
| Consumer exposure controls | Avoid contact during pregnancy/while nursing. |
| Other information | Do not eat, drink or smoke during use. |

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according to the United Nations GHS (Rev. 4, 2011)

8.3. Individual protection measures, such as personal protective equipment (PPE)

Materials for protective clothing Long sleeved protective clothing

Hand protection Wear protective gloves. The permeation time is not the maximum wearing time! Generally speaking, it must be reduced. Contact with either mixtures of substances or different substances may shorten the protective function's effective duration.

| Type | Material | Permeation | Thickness (mm) | Penetration | Standard |
|-------------------|----------------------|-------------------|----------------|-------------|----------|
| Disposable gloves | Nitrile rubber (NBR) | 6 (> 480 minutes) | > 0,4 | | EN 374 |

Eye protection Wear security glasses which protect from splashes

| Type | Use | Characteristics | Standard |
|----------------|---------|-----------------|----------------|
| Safety glasses | Droplet | clear | EN 166, EN 170 |

Skin and body protection Wear suitable protective clothing



8.4. Exposure limit values for the other components

No additional information available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|--|------------------------|
| Physical state | Solid |
| Appearance | Thixotropic paste. |
| Colour | Light grey. |
| Odour | characteristic. |
| Odour threshold | No data available |
| pH | 6.6 |
| Relative evaporation rate (butylacetate=1) | No data available |
| Melting point | No data available |
| Freezing point | No data available |
| Boiling point | No data available |
| Flash point | No data available |
| Auto-ignition temperature | No data available |
| Decomposition temperature | No data available |
| Flammability (solid, gas) | Non flammable. |
| Vapour pressure | No data available |
| Relative vapour density at 20 °C | No data available |
| Relative density | No data available |
| Density | 1.45 g/cm ³ |
| Solubility | insoluble in water. |

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according to the United Nations GHS (Rev. 4, 2011)

| | |
|----------------------|--------------------|
| Log Pow | No data available |
| Viscosity, kinematic | No data available |
| Viscosity, dynamic | 45 - 59 Pa·s 23 °C |
| Explosive properties | No data available |
| Oxidising properties | No data available |
| Explosive limits | No data available |

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No additional information available.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Thermal decomposition generates : fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

| | |
|-----------------------------|----------------|
| Acute toxicity (oral) | Not classified |
| Acute toxicity (dermal) | Not classified |
| Acute toxicity (inhalation) | Not classified |

| Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (9003-36-5) | |
|---|---|
| LD50 oral rat | > 5000 mg/kg bodyweight (Rat; ECHA) |
| LD50 dermal rat | > 2000 mg/kg bodyweight (Rat; ECHA) |
| butanedioldiglycidyl ether (2425-79-8) | |
| LD50 oral rat | 2980 mg/kg (Rat) |
| LD50 oral | 1163 mg/kg (Rat; Exp. Key study ECHA) |
| LD50 dermal rabbit | 1130 mg/kg (Rabbit) |
| [3-(2,3-epoxypropoxy)propyl]trimethoxysilane (2530-83-8) | |
| LD50 oral rat | 8025 mg/kg bodyweight (Rat; Equivalent or similar to OECD 401; Experimental value) |
| LD50 dermal rabbit | 4250 mg/kg bodyweight (Rabbit; Experimental value; Equivalent or similar to OECD 402) |
| 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane (1675-54-3) | |
| LD50 dermal rat | > 2000 mg/kg (Rat; Experimental value; OECD 402: Acute Dermal Toxicity) |

Skin corrosion/irritation Causes severe skin burns and eye damage.
pH: 6.6

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according to the United Nations GHS (Rev. 4, 2011)

| | |
|---|---|
| Serious eye damage/irritation | Serious eye damage, category 1, implicit pH: 6.6 |
| Respiratory or skin sensitisation | May cause an allergic skin reaction. |
| Germ cell mutagenicity | Suspected of causing genetic defects. |
| Carcinogenicity | Not classified |
| Reproductive toxicity | May damage fertility or the unborn child. |
| STOT-single exposure | Not classified |
| STOT-repeated exposure | Not classified |
| Aspiration hazard | Not classified |
| Potential adverse human health effects and symptoms | No additional information available. |

SECTION 12: Ecological information

12.1. Toxicity

| | |
|--|--|
| Ecology - water | Toxic to aquatic life with long lasting effects. |
| Hazardous to the aquatic environment, short-term (acute) | Toxic to aquatic life. |
| Classification procedure (Hazardous to the aquatic environment, short-term (acute)) | Calculation method |
| Hazardous to the aquatic environment, long-term (chronic) | Toxic to aquatic life with long lasting effects. |
| Classification procedure (Hazardous to the aquatic environment, long-term (chronic)) | Calculation method |

| butanedioldiglycidyl ether (2425-79-8) | |
|--|---|
| LC50 fish 1 | 24 mg/l (96 h; Pisces) ECHA |
| LC50 other aquatic organisms 1 | > 160 mg/l |
| NOEC (acute) | 40 mg/l |
| Threshold limit algae 1 | 88930 mg/l (96 h; Algae) |
| [3-(2,3-epoxypropoxy)propyl]trimethoxysilane (2530-83-8) | |
| LC50 fish 1 | 55 mg/l (96 h; Cyprinus carpio; Young) |
| EC50 Daphnia 1 | 473 - 710 mg/l (48 h; Daphnia magna) |
| LC50 fish 2 | 237 mg/l 96 h; Salmo gairdneri (Oncorhynchus mykiss) |
| Threshold limit algae 1 | 119 mg/l (7 days; Anabaena flosaquae) |
| Threshold limit algae 2 | 250 mg/l (72 h; Selenastrum capricornutum) |
| 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane (1675-54-3) | |
| LC50 fish 1 | 2.3 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Oncorhynchus mykiss, Semi-static system, Fresh water, Experimental value, Nominal concentration) |
| EC50 Daphnia 1 | 2 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value) |
| LC50 fish 2 | 2.3 mg/l (96 h; Oncorhynchus mykiss; Nominal concentration) |
| Threshold limit algae 1 | > 11 mg/l (72 h; Scenedesmus sp.) |
| Threshold limit algae 2 | 4.2 mg/l (72 h; Scenedesmus sp.) |

12.2. Persistence and degradability

| HIT-RE 500 V3, A | |
|--|---|
| Persistence and degradability | May cause long-term adverse effects in the environment. |
| Quartz (SiO2) | |
| Persistence and degradability | Biodegradability: not applicable. |
| Chemical oxygen demand (COD) | Not applicable (inorganic) |
| ThOD | Not applicable (inorganic) |
| butanedioldiglycidyl ether (2425-79-8) | |
| Biochemical oxygen demand (BOD) | 0.01982 g O ₂ /g substance |
| 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane (1675-54-3) | |
| Persistence and degradability | Not readily biodegradable in water. |

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Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

12.3. Bioaccumulative potential

| | |
|--|--|
| HIT-RE 500 V3, A | |
| Bioaccumulative potential | Not established. |
| Quartz (SiO₂) | |
| Bioaccumulative potential | No bioaccumulation data available. |
| butanedioldiglycidyl ether (2425-79-8) | |
| Log Pow | -0.15 |
| [3-(2,3-epoxypropoxy)propyl]trimethoxysilane (2530-83-8) | |
| Log Pow | -0.92 (Estimated value) |
| 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane (1675-54-3) | |
| BCF other aquatic organisms 1 | 31 (Estimated value, Fresh weight) |
| Log Pow | 3 (Estimated value, 25 °C) |
| Bioaccumulative potential | Low potential for bioaccumulation (BCF < 500). |

12.4. Mobility in soil

| | |
|--|---------------------------------------|
| Quartz (SiO₂) | |
| Ecology - soil | Low potential for mobility in soil. |
| butanedioldiglycidyl ether (2425-79-8) | |
| Log Pow | See section 12.1 on ecotoxicology |
| [3-(2,3-epoxypropoxy)propyl]trimethoxysilane (2530-83-8) | |
| Log Pow | See section 12.1 on ecotoxicology |
| 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane (1675-54-3) | |
| Surface tension | 59 mN/m (20 °C, 0.09 g/l) |
| Log Pow | See section 12.1 on ecotoxicology |
| Log Koc | See section 12.1 on ecotoxicology |
| Ecology - soil | Low potential for adsorption in soil. |

12.5. Other adverse effects

| | |
|-----------------------|-------------------------------------|
| Ozone | Not classified |
| Other adverse effects | No additional information available |
| Other information | Avoid release to the environment. |

SECTION 13: Disposal considerations

13.1. Waste treatment methods

| | |
|--|--|
| Regional legislation (waste) | Disposal must be done according to official regulations. |
| Product/Packaging disposal recommendations | After curing, the product can be disposed of with household waste. . Full or only partially emptied cartridges must be disposed of as special waste in accordance with official regulations. Packaging contaminated by the product : Dispose in a safe manner in accordance with local/national regulations. |
| Ecology - waste materials | Avoid release to the environment. |

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

| ADR | IMDG | IATA | RID |
|---|---|---|---|
| 14.1. UN number | | | |
| 1759 | 1759 | 1759 | 1759 |
| 14.2. UN proper shipping name | | | |
| CORROSIVE SOLID, N.O.S. (trimethylolpropane) | CORROSIVE SOLID, N.O.S. (trimethylolpropane) | Corrosive solid, n.o.s. (trimethylolpropane) | CORROSIVE SOLID, N.O.S. (trimethylolpropane) |

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Safety Data Sheet

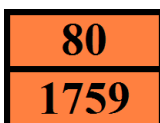
according to the United Nations GHS (Rev. 4, 2011)

| ADR | IMDG | IATA | RID |
|---|---|--|--|
| triglycidylether) | triglycidylether) | triglycidylether) | triglycidylether) |
| Transport document description | | | |
| UN 1759 CORROSIVE SOLID, N.O.S. (trimethylolpropane triglycidylether), 8, III, (E), ENVIRONMENTALLY HAZARDOUS | UN 1759 CORROSIVE SOLID, N.O.S. (trimethylolpropane triglycidylether), 8, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS | UN 1759 Corrosive solid, n.o.s. (trimethylolpropane triglycidylether), 8, III, ENVIRONMENTALLY HAZARDOUS | UN 1759 CORROSIVE SOLID, N.O.S. (trimethylolpropane triglycidylether), 8, III, ENVIRONMENTALLY HAZARDOUS |
| 14.3. Transport hazard class(es) | | | |
| 8 | 8 | 8 | 8 |
| | | | |
| 14.4. Packing group | | | |
| III | III | III | III |
| 14.5. Environmental hazards | | | |
| Dangerous for the environment : Yes | Dangerous for the environment : Yes Marine pollutant : Yes | Dangerous for the environment : Yes | Dangerous for the environment : Yes |
| No supplementary information available | | | |

14.6. Special precautions for user

- Overland transport

| | |
|--------------------------------|-------------------------|
| Classification code (ADR) | C10 |
| Special provisions (ADR) | 274 |
| Limited quantities (ADR) | 5kg |
| Packing instructions (ADR) | P002, IBC08, LP02, R001 |
| Mixed packing provisions (ADR) | MP10 |
| Transport category (ADR) | 3 |
| Orange plates | |



| | |
|-------------------------------|---|
| Tunnel restriction code (ADR) | E |
|-------------------------------|---|

- Transport by sea

| | |
|-----------------------------|------------|
| Special provisions (IMDG) | 223, 274 |
| Packing instructions (IMDG) | P002, LP02 |
| EmS-No. (Fire) | F-A |
| EmS-No. (Spillage) | S-B |
| Stowage category (IMDG) | A |

- Air transport

| | |
|---------------------------------|----------|
| PCA packing instructions (IATA) | 860 |
| PCA max net quantity (IATA) | 25kg |
| CAO packing instructions (IATA) | 864 |
| Special provisions (IATA) | A3, A803 |

HIT-RE 500 V3, A

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

- Rail transport

| | |
|----------------------------|-------------------------|
| Special provisions (RID) | 274 |
| Packing instructions (RID) | P002, IBC08, LP02, R001 |
| Carriage prohibited (RID) | No |

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

No additional information available

SECTION 16: Other information

| | |
|-----------------|------------|
| SDS Major/Minor | None |
| Issue date | 13/05/2020 |
| Revision date | 13/05/2020 |
| Supersedes | 25/02/2019 |

Indication of changes:

| Section | Changed item | Change | Comments |
|---------|------------------------|----------|----------|
| 9 | pH | Added | |
| 14 | Transport information | Modified | |
| 16 | Additional information | Added | |

Abbreviations and acronyms

- ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
- ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road
- ATE - Acute Toxicity Estimate
- BCF - Bioconcentration factor
- CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
- DMEL - Derived Minimal Effect level
- DNEL - Derived-No Effect Level
- IATA - International Air Transport Association
- EC50 - Median effective concentration
- IMDG - International Maritime Dangerous Goods
- LC50 - Median lethal concentration
- LD50 - Median lethal dose
- LOAEL - Lowest Observed Adverse Effect Level
- NOAEC - No-Observed Adverse Effect Concentration
- NOAEL - No-Observed Adverse Effect Level
- NOEC - No-Observed Effect Concentration
- PBT - Persistent Bioaccumulative Toxic
- PNEC - Predicted No-Effect Concentration
- REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
- RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
- SDS - Safety Data Sheet
- vPvB - Very Persistent and Very Bioaccumulative

Other information

None.

HIT-RE 500 V3, A

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

Full text of H-statements:

| | |
|------|---|
| H302 | Harmful if swallowed. |
| H312 | Harmful in contact with skin. |
| H313 | May be harmful in contact with skin |
| H314 | Causes severe skin burns and eye damage. |
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H318 | Causes serious eye damage. |
| H319 | Causes serious eye irritation. |
| H332 | Harmful if inhaled. |
| H341 | Suspected of causing genetic defects. |
| H360 | May damage fertility or the unborn child. |
| H372 | Causes damage to organs through prolonged or repeated exposure. |
| H401 | Toxic to aquatic life |
| H402 | Harmful to aquatic life |
| H411 | Toxic to aquatic life with long lasting effects. |
| H412 | Harmful to aquatic life with long lasting effects. |

SDS_UN_Hilti

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.



Hilti HIT-RE500V3 Injectable Mortar Job Reference

| Year | Project Name | Customer Name | Project type |
|------|--|-------------------------------------|----------------------|
| 2020 | R6 TKO-LAM TIN TUNNEL NE/2015/01 | LEIGHTON - CHINA STATE JOINT | Infrastructure |
| 2020 | CHING HONG RD N HOUSING PH1,2 | CHINA STATE CONSTRUCTION | Residential |
| 2020 | R6 CTL KLN ROUTE-KAI TAK EAST HY/2018/02 | GOOD MIND ENGINEERING LIMITED | Infrastructure |
| 2020 | R6 CTL KLN ROUTE-KAI TAK WEST HY/2014/07 | GOOD MIND ENGINEERING LIMITED | Infrastructure |
| 2020 | KAI TAK INLAND REVENUE TOWER | GAMMON CONSTRUCTION LIMITED | Office |
| 2020 | WEST KOWLOON - LYRIC THEATRE | GAMMON CONSTRUCTION LIMITED | Community & Cultural |
| 2020 | New - Infrastructure - Ho Man Tin | BIK HOI CIVIL ENGINEERING CO LTD | Infrastructure |
| 2020 | R6 TRUNK ROAD T2 ED/2018/04 | BOUYGUES TRAVAUX PUBLICS | Infrastructure |
| 2020 | Refurbishment - Utilities - Stonecutters Island, West Kowloo | PAUL Y. CONSTRUCTION CO LTD | Utilities |
| 2020 | 17A & 17B VENTRIS RD - NURSING HOME | CHEVALIER (CONSTRUCTION) CO LTD | Community & Cultural |
| 2021 | R6 TKO-LAM TIN TUNNEL NE/2015/01 | LEIGHTON - CHINA STATE JOINT | Infrastructure |
| 2021 | R6 TRUNK ROAD T2 ED/2018/04 | BOUYGUES TRAVAUX PUBLICS | Infrastructure |
| 2021 | R6 CTL KLN ROUTE-KAI TAK EAST HY/2018/02 | ALCHMEX-PAUL Y JOINT VENTURE | Infrastructure |
| 2021 | R6 CTL KLN ROUTE-CENTRAL TUNNEL HY/2018/08 | BOUYGUES TRAVAUX PUBLICS | Infrastructure |
| 2021 | R6 CTL KLN ROUTE-KAI TAK WEST HY/2014/07 | GOOD MIND ENGINEERING LIMITED | Infrastructure |
| 2021 | R6 CTL KLN ROUTE-YMT WEST HY/2014/20 | H.K. SHING TAT CIVIL ENG. CO. | Infrastructure |
| 2021 | TKO DESALINATION PLANT PH1 13/WSD/17 | CHINA NATIONAL CHEMICAL ENGINEERING | Utilities |
| 2021 | SAI SHA SAI KUNG N.157 GOLF CLUB | SANFIELD - GAMMON CONSTRUCTION | Sport & Recreation |
| 2021 | ORGANIC RESOURCES RECOVERY CENTRE PH2 (WASTE TREA | GOOD MIND ENGINEERING LIMITED | Utilities |
| 2021 | R6 TKO BRIDGE & P2 ROAD NE/2015/02 | | Infrastructure |
| 2022 | R6 TRUNK ROAD T2 ED/2018/04 | BOUYGUES TRAVAUX PUBLICS | Infrastructure |
| 2022 | TKO DESALINATION PLANT PH1 13/WSD/17 | CHINA NATIONAL CHEMICAL ENGINEERING | Utilities |
| 2022 | R6 TKO-LAM TIN TUNNEL NE/2015/01 | LEIGHTON - CHINA STATE JOINT | Infrastructure |
| 2022 | KAI TAK NEW ACUTE HOSPITAL (SITE B) | CHINA STATE CONSTRUCTION | Health |
| 2022 | R6 CTL KLN ROUTE-CENTRAL TUNNEL HY/2018/08 | BOUYGUES TRAVAUX PUBLICS | Infrastructure |
| 2022 | YING TUNG RD, TUNG CHUNG AREA 99 - PUBLIC TRANSPORT IN | YAU LEE CONSTRUCTION CO LTD | Transport |
| 2022 | R6 CTL KLN ROUTE-KAI TAK WEST HY/2014/07 | GAMMON CONSTRUCTION LIMITED | Infrastructure |
| 2022 | ANDERSON ROAD QUARRY, SITE R2-2 | YAU LEE CONSTRUCTION CO LTD | Residential |
| 2022 | KING FUK ST, KAI SAN RD & TSAT PO ST, NKIL 6540 - YOUTH CE | PENTA-OCEAN CONSTRUCTION CO. LTD | Community & Cultural |
| 2022 | R6 CTL KLN ROUTE-YMT WEST HY/2014/20 | H.K. SHING TAT CIVIL ENG. CO. | Infrastructure |
| 2023 | R6 CTL KLN ROUTE-CENTRAL TUNNEL HY/2018/08 | BOUYGUES TRAVAUX PUBLICS | Infrastructure |
| 2023 | ANDERSON ROAD QUARRY, SITE R2-2 | AGGRESSIVE CONSTRUCTION COMPANY | Residential |
| 2023 | R6 TRUNK ROAD T2 ED/2018/04 | BOUYGUES TRAVAUX PUBLICS | Infrastructure |
| 2023 | TKO LOHAS PARK PH13 | CHINA OVERSEAS BUILDING | Infrastructure |
| 2023 | TKO DESALINATION PLANT PH1 13/WSD/17 | AA-JEC IJV | Utilities |
| 2023 | R6 CTL KLN ROUTE-KAI TAK EAST HY/2018/02 | ALCHMEX-PAUL Y JOINT VENTURE | Infrastructure |
| 2023 | HANG TAI RD, MA ON SHAN AREA 86B PH 1&2 - HOUSING | CHINA STATE CONSTRUCTION | Residential |
| 2023 | KAI TAK AREA 1E, SITE 1 - HKHS APARTMENT & ELDERLY HOME | TYSAN FOUNDATION LIMITED | Health |
| 2023 | R6 TKO-LAM TIN TUNNEL NE/2015/01 | TIME CONCEPT CONSTRUCTION LIMITED | Infrastructure |
| 2023 | New - Infrastructure - Lei Yue Mun Road & Ko Chiu Road, Yau | CHINA ROAD AND BRIDGE CORPORATION | Infrastructure |