



# HIGH PERFORMANCE DENTAL SILICAS



Madhu Silica Pvt. Ltd.

Bhavnagar, Gujarat

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Manufacturers of Precipitated Silicas

# ABOUT US

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Madhu Silica Pvt. Ltd. (MSPL) is the largest manufacturer of Precipitated Silica in India.

MSPL manufactures more than 50 different grades of Silicas catering to a wide array of Industries for different applications.

The Company along with its Sister Concern, M/s. Aquagel Chemicals (Bhavnagar) Pvt. Ltd. have 6 established plants capable of manufacturing 2,00,000 MT / annum.

The company today has a marketing office in Delhi, a large Business Associate net work in India and across the Globe.

We are ISO certified organization, registered for REACH with compliance to several other standards and country specific requirements.

## **Our Markets & Silica Grades**

- Oral Healthcare / Cosmetics / Pharma Applications
- Tyre / Rubber / Footwear / Misc. Rubber Applications (Highly Dispersible & Conventional Silica grades)
- Food / Feed applications
- Specialty applications
- Polymer / Plastics / Paints applications (Gel route Silicas)

## **Facilities**

- World class manufacturing facilities to give customer satisfaction through Consistency in Quality
- In-house Rubber, Dental, paint Application Labs
- World class Research & Development Centre, established in 1996, recognized by DSIR, New Delhi.



## MISSION

Mission to serve the Industry by offering consistent quality products, product accessibility with differentiating services.



## VISION

With a vision to create a Brand Image bringing in sustainability with growth.



## VALUES

Keeping intact the values for core competence in Governance with Integrity. Accountability, Passion and Diversity.



3-D view of the manufacturing site.

REACH registered

Country specific certificates

FEMi - QS

HACCP

FDA-Cosmetic

OHSAS 18000

ISO 9001

ISO 14001

ISO 22000

Our manufacturing setups are capable to produce defined quality with consistency

In place are

- Quality Management Systems
- Accreditations from ISO systems
- Sustainability, Transparency with Accountable work practices



R&D Lab



Q. C. Laboratory

Our R & D Centre was established in 1996 which gave strength to our operations and fueled our growth.

With Innovative capabilities, in place are:

- Testing and Application Laboratories for Toothpaste and Rubber
- Pilot Plant Set up



Madhu Silica Pvt. Ltd. – Research & Development Centre  
D. S. I. R., Govt. of India recognized centre

# DENTAL SILICAS ABRASIVE AND THICKENING SILICAS

Dental silicas manufactured by Madhu Silica Pvt. Ltd., are designed to give excellent functional performance in toothpaste both in terms of cleaning and rheology control. The microstructure of the product is carefully controlled during their manufacturing so as to give the optimum desired properties required by the customers.

Madhu silica brings in more than 4 decades of experience in manufacturing precipitated silicas and have installed state of the art technology to control the key properties of product in terms of particle size distribution, oil

absorption, surface area, pore volume and pore size distribution.

Both type of abrasive and Thickening silicas have high purity with low levels of impurities like Al, Mg, Ca and heavy metals to give superior stability of active ingredient specially Fluoride used in toothpastes.

Madhu silica has in-house R&D centre to bring our new innovations as per customer requirements and has capability to custom design the products as per the specification of customers.

## BENEFITS OF MSPL HIGH PERFORMANCE DENTAL SILICAS

- Range of dental abrasive silicas with RDA values ranging from 70 to 200 for controlled abrasivity, thereby giving optimal cleaning efficacy.
- Range of dental thickening silica grades, with different viscosities for controlling rheology in toothpaste formulations.
- Range of dental abrasive silicas with controlled RI & %Transmission suitable for Clear Gels offering excellent compatibility with active ingredients .
- High cleaning abrasive silica which can be used as boosters providing significant cleaning efficacy.
- Sensory/agglomerate silica granules, MMG-non-fragile & MAG-fragile series available in white and different colors, to achieve sensory feeling at loading between 0.5- 1.0% in toothpaste formulations.
- Compatible with active ingredients such as Fluoride giving excellent stability in the product.



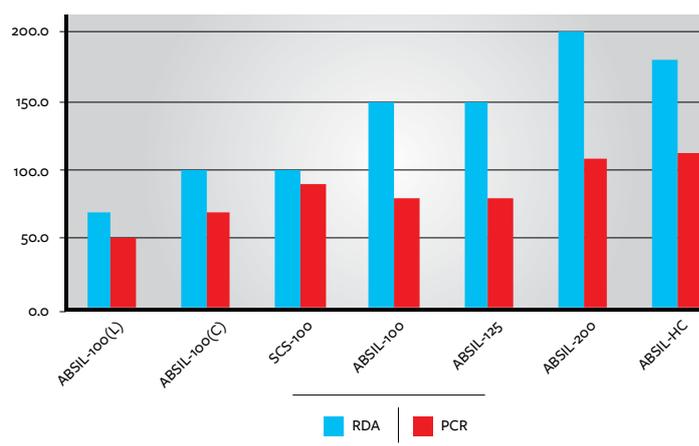
# DENTAL SILICAS

## ABRASIVE SILICAS

PRODUCT	FEATURES	PERFORMANCE PARAMETER
ABSIL-100(L)	Low abrasive silica for clear gel and opaque products. Effective at levels from 10-20%. Recommended for sensitive teeth and kids toothpaste formulations.	RDA of 70
ABSIL-100(C)	Medium abrasive silica with good cleaning efficacy at levels from 10-20%, ideal for high clarity clear / transparent gels. Ideal for regular toothpastes.	RDA of 100
ABSIL-100	High abrasive cleaner for clear gel and opaque products. Used extensively in quality products for excellent cleaning. Recommended loading: 8-10%.	RDA of 150
ABSIL -125	High abrasive silica specially suited for high transparent clear gels with very good cleaning efficacy. It can also be used in standard good quality opaque products. Recommended loading : 8-10%.	RDA of 150
ABSIL -HC	High Cleaning silica, cleaning boosters with good optical properties. Addition of low levels of ABSIL HC with regular cleaning silicas enhances cleaning performances for whitening toothpaste. Recommended loading: 2-3% used with ABSIL-100 or 100(C).	RDA of 180
ABSIL-200	High Cleaning silica boosters, with lower mean particle size. Recommended for whitening toothpaste. Recommended loading: 2-3% when used with ABSIL-100 or 100(C).	RDA of 200

## RADIOACTIVE DENTINE ABRASION (RDA) AND PELLICLE CLEANING RATIO

- Radioactive Dentine Abrasion (RDA) and Pellicle Cleaning ratio (PCR) values for different abrasive silicas are shown in the bar chart
- ABSIL-100(L) is gentle silica with low RDA suitable for children toothpaste
- ABSIL-100/ABSIL-125 and ABSIL-100(C) are used as standard cleaning agents in transparent and opaque formulations
- ABSIL-200 and ABSIL-HC silica are used along with ABSIL-100/ ABSIL-100 (C) to enhance cleaning potential for whitening claims.



# DENTAL SILICAS

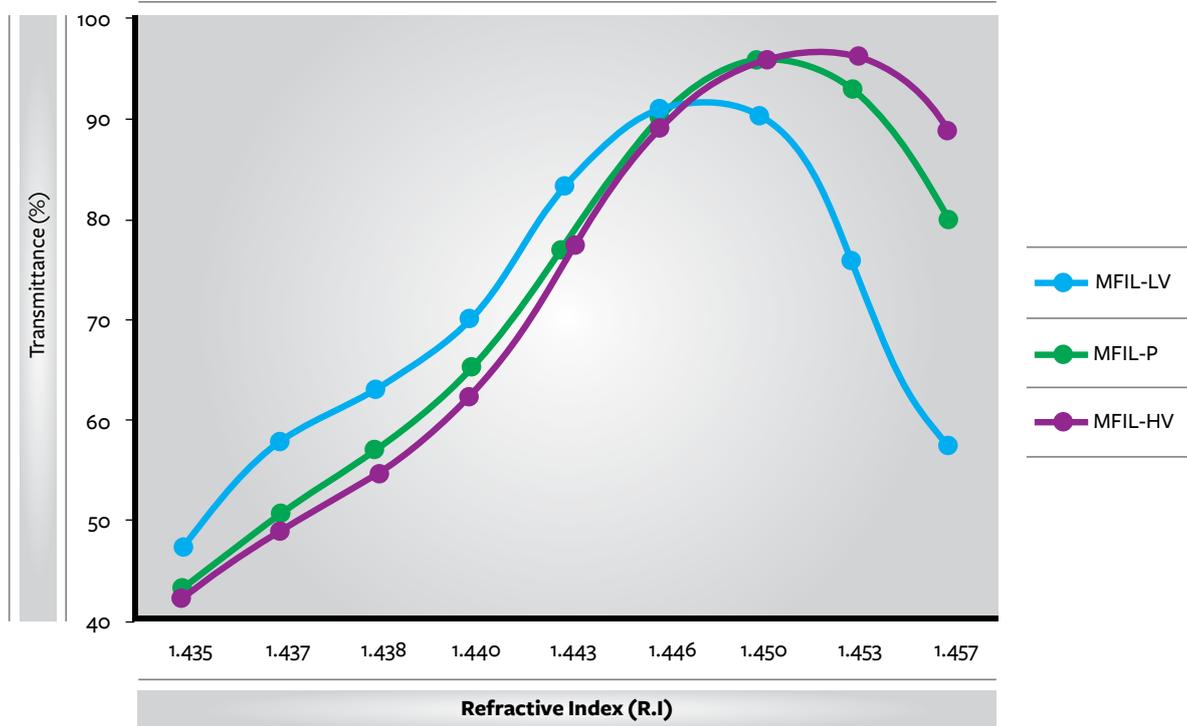
## THICKENING SILICAS

PRODUCT	FEATURES	PERFORMANCE PARAMETER
MFIL-P	Efficient thickener offering good viscosity build in toothpaste with excellent optical properties to give clear gels. This is the leading thickener used widely in standard and high quality products. Recommended loading : 5-12%.	RI of 1.453
MFIL- HV	High Viscosity thickener to build viscosity at lower loading of silica. This grade is cost effective solution for value products as it can be used at lower incorporations to get the desired viscosity.	RI of 1.453
MFIL- LV	Medium Viscosity thickener for good rheology control in toothpastes. Recommended loading : 5-12%.	RI of 1.448

### KEY FEATURES OF THICKENING SILICAS

- Range of dental thickening silica grades, with different viscosities for controlling rheology in toothpaste formulations.
- Controlled RI & % Transmission suitable for Clear Gels for excellent transparency of gel toothpastes (Transmission > 85%).
- Good % transmission over broader RI which make them compatible with most of abrasive silicas.
- Offering excellent compatibility with active ingredients specially fluoride.
- Excellent ribbon stand up.
- Can be used in chalk based formulations in the range of 1-5% giving the gloss and better stand up of ribbon of product.

**REFRACTIVE INDEX VS TRANSMITTANCE - THICKENING SILICA**





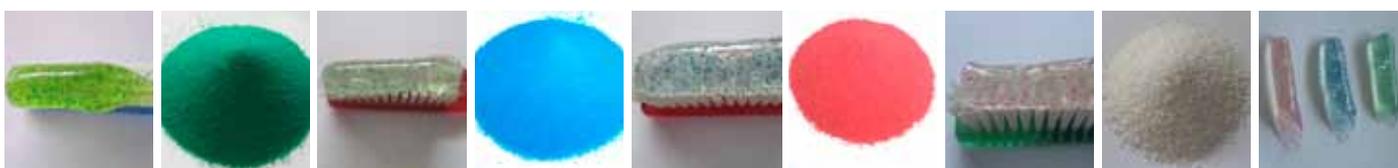
# DENTAL SILICAS

## SENSORY GRANULES

SENSORY SILICA GRANULES –MMG SERIES (non-fragile)  
AGGLOMERATES - MAG SERIES (fragile)

PRODUCT	FEATURES	PERFORMANCE PARAMETER
MAG – Series Red, Green and Blue	Disintegrating colored granules for visible and sensory benefits. They breakdown into primary particles during brushing.	Sensorial
MMG – Series Red, Green and Blue	Non-disintegrating granules for visible and sensory benefits. Gives good sensorial experience throughout the brushing regime.	Sensorial

GRADE	DESCRIPTION	AVERAGE PARTICLE SIZE (µm)	FEATURES
MMG-WHITE	Non Pigmented Granules	230-270	Non Fragile, strong sensory feel
MMG-RED	Red Silica Granules	230-270	Non Fragile, strong sensory feel
MMG-BLUE	Blue Silica Granules	230-270	Non Fragile, strong sensory feel
MMG-GREEN	Green Silica Granules	230-270	Non Fragile, strong sensory feel
MMG-WT	Opacified Silica Granules	230-270	Non Fragile, strong sensory feel
MMG-Brown	Brown Silica Granules	230-270	Non Fragile, strong sensory feel
BMT-BLUE	Blue Mentholated Granules	230-270	Non Fragile, strong sensory feel
BMT-WHITE	White Mentholated Granules	230-270	Non Fragile, strong sensory feel
MAG-WHITE	Non Pigmented agglomerates	280-420	Fragile, provides mild sensory effect
MAG-RED	Red Silica agglomerates	280-420	Fragile, provides mild sensory effect
MAG-BLUE	Blue Silica agglomerates	280-420	Fragile, provides mild sensory effect
MAG-GREEN	Green Silica agglomerates	280-420	Fragile, provides mild sensory effect

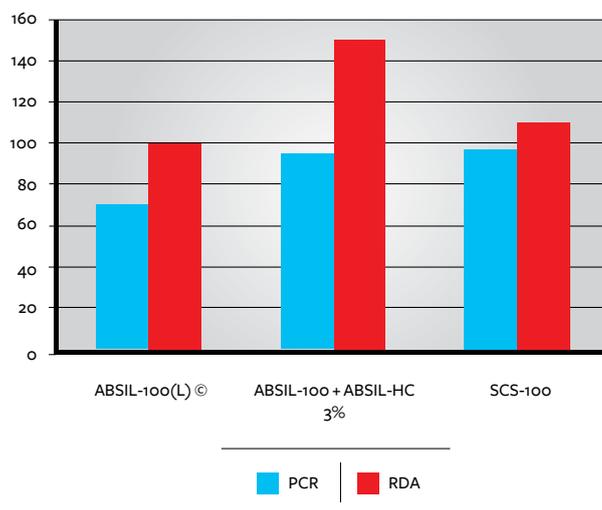


# SUPER CLEANING SILICA (SCS-100) COMPOSITE SILICA

## NEW ABRASIVE SILICA SCS-100

High cleaning silicas such as ABSIL-200 and ABSIL-HC have high RDA value and therefore are limited in their use and used in combination of standard silica such as ABSIL-100. It is highly desired to have abrasive silica that can clean efficiently (i.e., high PCR) but has low RDA like standard silica.

SCS-100 has the highest ratio of cleaning to abrasion, making it ideally suited for use in toothpaste formulations to provide equivalent levels of cleaning at significantly reduced levels of abrasion, when compared to the same total loading of medium-to-high cleaning silica alone.



## BENEFITS

- Low abrasivity, (RDA around 110) with high cleaning (PCR around 100) provides lower damage to enamel/dentine with superior cleaning
- Exceptional formulating flexibility to make clear/opaque products
- Excellent optical properties to give transparent gels
- High level of compatibility with active ingredients
- Cost effective solution for making whitening claims



## TYPICAL PRODUCT PROPERTIES

PROPERTY	TYPICAL VALUE
PCR (20% loading)	95-100
RDA (20% loading)	100-110
Median particle size (µm)	10
Oil absorption (cc/100g)	95
325 mesh residue (%)	1.50
Sodium sulfate (%)	0.80
5% pH	7.0
Loss on Drying (%)	5.0
Refractive Index	1.440

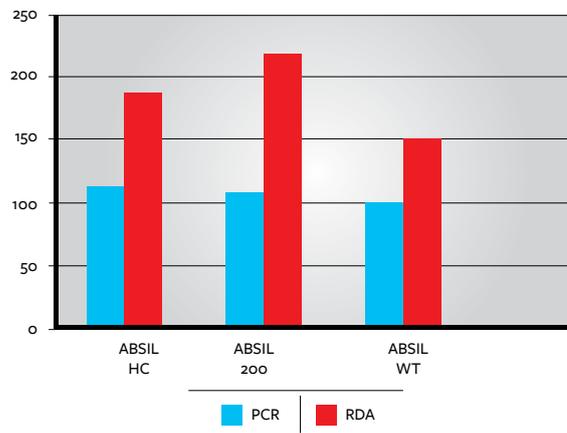
# WHITENING SILICA (ABSIL - WT)

## MICRO HIGH CLEANING ABRASIVE SILICA

### MICRO HIGH CLEANING ABRASIVE SILICA ABSIL-WT

High cleaning silicas such as ABSIL-200 and ABSIL-HC have high RDA value and therefore are used in limited loading in the products. These products have also low transmission in gels. For whitening products, it is desired to have abrasive silica that can clean efficiently (i.e., high PCR) and at the same time has good transmission values for good transparency required for gels.

ABSIL-WT has low particle size, making it ideally suited for use in whitening toothpaste formulations to provide excellent cleaning and at the same time gives good transparency for gels.

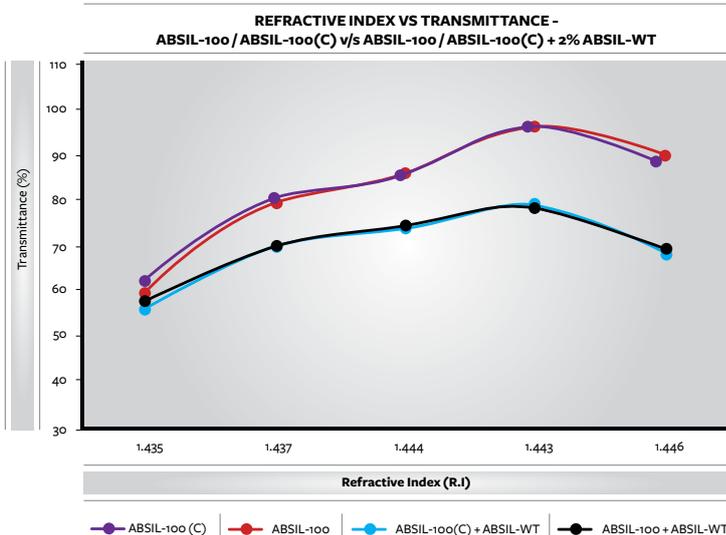


### BENEFITS

- Lower abrasivity, (RDA around 150) with high cleaning (PCR around 100) provides excellent cleaning for whitening toothpastes.
- Low particle size for giving polishing effects in products
- Excellent optical properties to give transparent gels
- High level of compatibility with active ingredients
- Good efficacy for making whitening claims



PROPERTY	TYPICAL VALUE
PCR (10% loading)	95-100
RDA (10% loading)	140-150
Median particle size (µm)	3-4
Oil absorption (cc/100g)	50-65
Transmission 10% ABSIL + 2% ABSIL WT (%)	>70
Sodium sulfate (%)	0.80
5% pH	7.0
Loss on Drying (%)	5.0
Refractive Index	1.440-1.450



# We cater to industries worldwide for below applications



Please contact us for your requirements



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